DRAFT

METROPOLITAN TRANSPORTATION PLAN 2050

Evansville MPO

Henderson • Vanderburgh • Warrick

METROPOLITAN TRANSPORTATION PLAN

2050

DRAFT

Evansville MPO Policy Committee Adoption:

FHWA Conformity Finding:

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ACKNOWLEDGEMENTS

Evansville MPO Policy Committee Members

Jack Corn, Jr.	Chairperson, Evansville City Council Appointment
Rusty Fowler	Vice-Chairperson, Indiana Department of Transportation
Lloyd Winnecke	Mayor, City of Evansville
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(NV) = Non-voting

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Greg Wathen	Evansville Regional Economic Partnership
Shari Sherman	Warrick County Chamber of Commerce
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ACKNOWLEDGEMENTS

Evansville MPO Technical Committee Members

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The following organizations are represented on the Technical Committee:

American Medical Response
American Structurepoint, Inc.
Arc of Evansville
Ascension St. Vincent
Black Chamber of Commerce Evansville
Carver Community Organization
Commonwealth Engineers, Inc.
CSX Transportation
David Matthews Associates
Dpatrick Automotive
Easterseals Rehabilitation Center
Eastland Mall
Evansville Regional Economic Partnership
EnviroKinetics, Inc.
Evansville Bicycle Club
Evansville Board of Public Safety
Evansville City Engineer
Evansville Department of Metropolitan Development
Evansville Department of Transportation and Services
Evansville Department of Urban Forestry
Evansville Deputy Mayor
Evansville Environmental Protection Agency
Evansville Parks and Recreation Department
Evansville Police Department
Evansville Regional Airport
Evansville Trails Coalition
Evansville/Vanderburgh County Area Plan Commission
Evansville/Vanderburgh County Emergency Management Agency
Evansville Water and Sewer Department
Federal Highway Administration (Indiana)
Federal Highway Administration (Kentucky)
Federal Transit Administration (Region V)
Green River Area Development District
Henderson Area Rapid Transit
Henderson City Engineer
HOLA Evansville
Henderson City Manager
Henderson County Engineer
Henderson County Riverport Authority
Henderson-Henderson County Chamber of Commerce
Henderson-Henderson County Plan Commission
Henderson County Judge Executive
Indiana Department of Environmental Management (Indianapolis)
Indiana Department of Transportation (Indianapolis)
Indiana Department of Transportation (Vincennes)
Indiana Southern Railroad
Kentucky Transportation Cabinet (Frankfort)
Kentucky Transportation Cabinet (Madisonville)
Lochmueller Group
Metropolitan Evansville Transit System
Port of Indiana-Mount Vernon
Posey County Chamber of Commerce
Qk4 Inc.
Shrewsberry & Associates, LLC
Southern Indiana Resource Solutions, Inc. (SIRS)
Town of Chandler
United Neighborhoods of Evansville (UNOE)
University of Evansville
US House of Representatives District 8
Vanderburgh County Emergency Management Agency
Vanderburgh County Engineer
Warrick County Economic Development
Warrick County Plan Commission
Warrick County School Corporation
Westside Improvement Association

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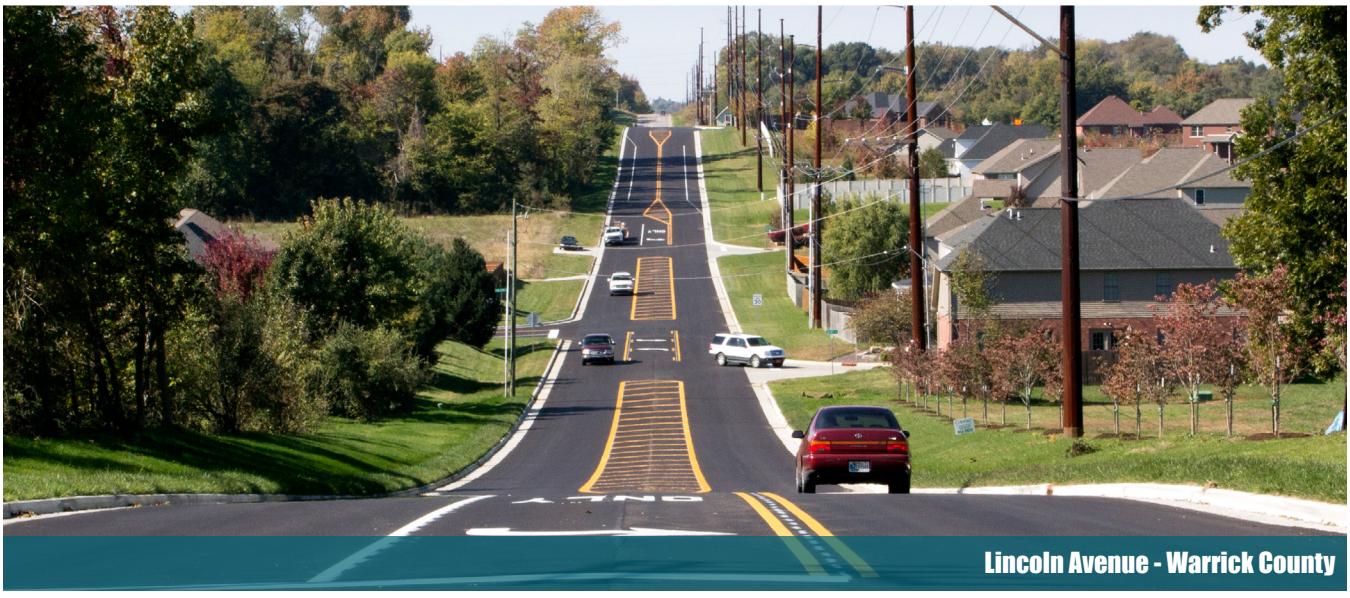
The MTP 2050

The Metropolitan Transportation Plan (MTP 2050) for the Evansville, Indiana - Henderson, Kentucky Urbanized Area is developed through the cooperative transportation planning process of the Evansville Metropolitan Planning Organization (MPO). Informed by input from public officials, local public agencies, a Citizen's Advisory Committee and the general public, the MTP 2050 is a guide for the implementation of multimodal transportation improvements, policies and programs in the Metropolitan Planning Area through 2050.

The MTP is required by federal statute for the programming of federal funds for transportation project planning and the implementation of ground transportation modes (roadway, transit, bicycle and pedestrian). By analyzing regional trends, transportation needs, local priorities and federal, state and local funding projections, the MTP provides a framework to achieve the goals and objectives developed through the planning process. The MTP 2050 replaces the MTP 2045 in fulfilling federal planning requirements.

The Evansville MPO is required to produce a Metropolitan Transportation Plan (MTP) every four to five years (depending on attainment for air quality) that looks at least 20 years into the future. This renewal period enables the MTP to reflect ever-changing community conditions. Implementation of projects in the MTP is managed through the Transportation Improvement Program (TIP), a short-term planning document detailing all federally-funded and regionally significant transportation projects. All projects in the TIP must be consistent with the MTP.

01 ABOUT THE MTP 2050



Lincoln Avenue - Warrick County

MTP 2050 BASICS

- Establishes a vision for the region's transportation system covering a planning period of at least 20 years
- Supports local goals targeting quality of life and health, economic vitality, environment, and safety and security
- Documents community priorities for how to spend limited resources
- Demonstrates fiscal constraint - projects in the plan must be consistent with reasonable projections of available funding over the planning period of the plan

The Evansville MPO

Federal law requires that all urbanized areas over 50,000 in population establish a Metropolitan Planning Organization to undertake a "3C" transportation planning process. This Continuous, Cooperative and Comprehensive planning process is required for a region to receive federal highway planning and improvement funding.

Established as the Evansville Urban Transportation Study (EUTS) in 1969, the Evansville MPO is the designated agency responsible for conducting the 3C planning process within the Evansville-Henderson urbanized area. Effective transportation planning requires an organization with a regional focus and the ability to operate independent of city, county and state lines.

Policy and Technical Committees

The Evansville MPO is guided by the advice of the Policy Committee. This is a chief advisory board that is responsible for setting policies and guiding projects. The Policy Committee approves all official actions taken by the Evansville MPO and consists of elected or appointed officials from state and local governments within the planning area.

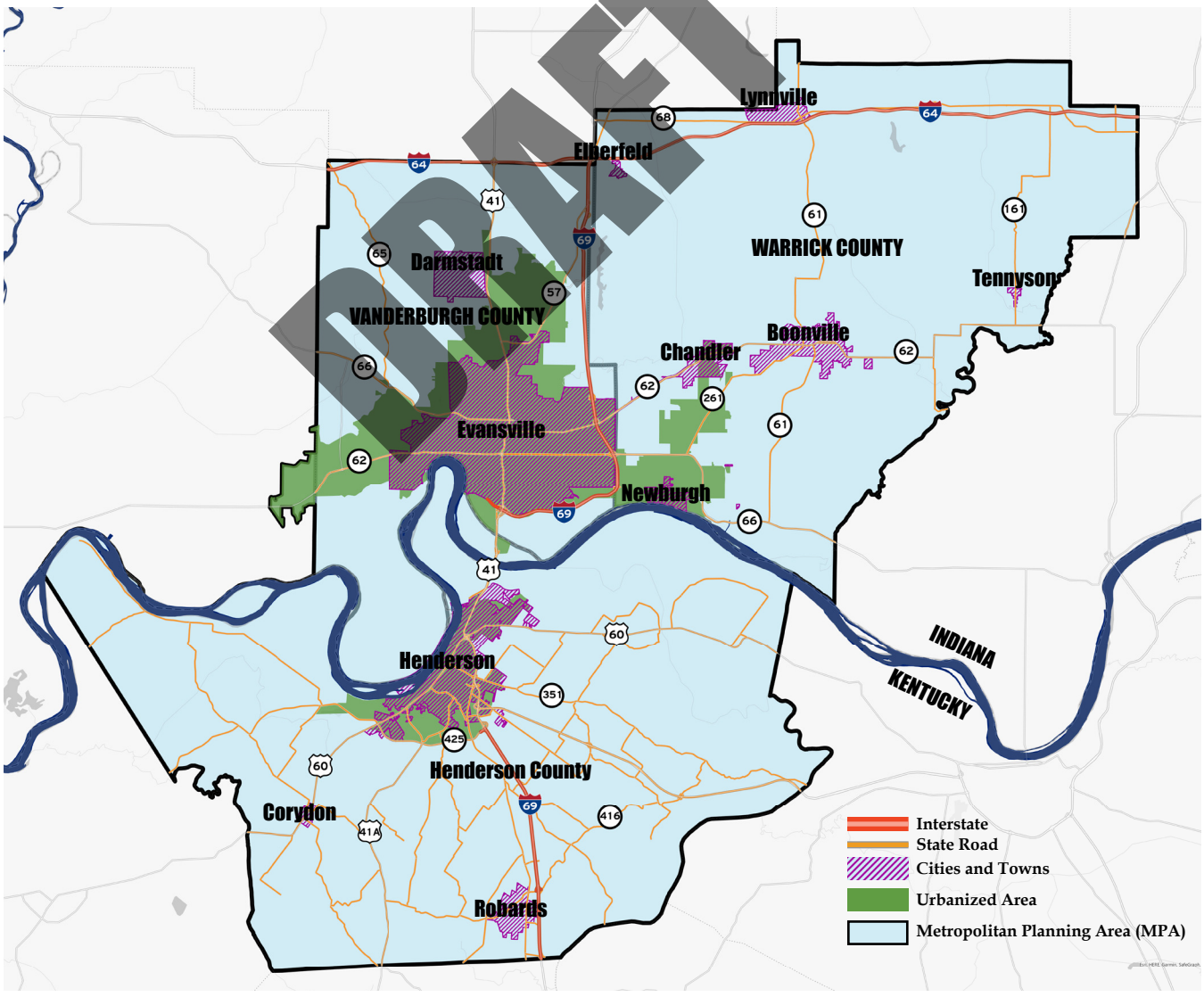
The Technical Committee is the chief working committee, providing relevant expertise and data to the Evansville MPO. The Technical Committee is composed of planners, engineers, community representatives, and professional staff from various departments of Local Public Agencies (LPAs) within the planning area.

Where We Plan

The Evansville MPO Metropolitan Planning Area (MPA) contains approximately 625 land square miles in Indiana, including the City of Evansville, Vanderburgh County, Warrick County, and a small area of eastern Posey County. In Kentucky, the Metropolitan Planning Area encompasses approximately 440 land square miles which includes the City of Henderson and Henderson County.

The Evansville-Henderson Urbanized Area is determined by population numbers from the decennial census. The Evansville-Henderson Urbanized Area was designated as a Transportation Management Area (TMA) because the population exceeded 200,000 people in the 2000 Census. This means that the Evansville MPO is responsible for prioritizing the suballocated funding from the state DOTs for surface transportation projects on federal-aid system roads within the Urbanized Area. For projects located outside of the Urbanized Area, LPAs work with their respective state DOTs for project development. The Evansville MPO Metropolitan Planning Area, including the Urbanized Area, is shown in Figure 1.1.

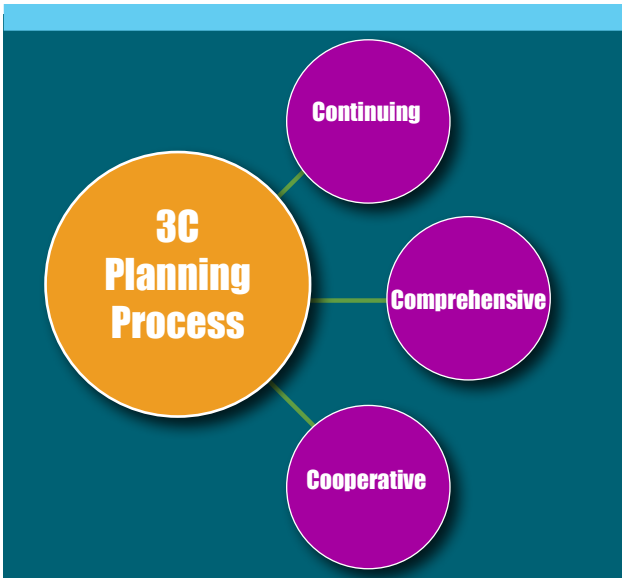
Figure 1.1: Evansville MPO Metropolitan Planning Area and Urbanized Area



The Planning Process

To develop the MTP 2050, the Evansville MPO followed the 3C planning process to receive as much public and LPA input as possible. The planning process included:

- Developing a vision, establishing goals and objectives, determining performance measures, setting short- and long-term targets, and collecting baseline data.
- Collecting an inventory of existing conditions, including updates to demographic data using 2020 Census, 2020 American Community Survey (ACS) estimates from the U.S. Census Bureau, utilizing population and employment forecasts from the 2022 Woods & Poole Economic data, Kentucky State Data Center, STATS Indiana and Bureau of Economic Analysis (BEA) trends used in the Evansville MPO model update, and updating the existing transportation network including roadway, bicycle, pedestrian, transit and freight network changes or additions since the MTP 2045.
- Project development, including consultation with Local Public Agencies (LPAs), the Citizen's Advisory Committee (CAC), and the public through survey results and open houses.
- Project analysis, including model analysis and Red Flag Investigations, was conducted for all projects that were recommended for inclusion in the MTP 2050. Demographic analysis was also conducted to identify the potential impacts on Environmental Justice populations and to assist with project selection.



The 3C transportation planning process was derived from the Federal-Aid Highway Act of 1962 to ensure a continuing, comprehensive and cooperative planning process was followed by states and local governments when developing transportation plans.

The Vision

A vision statement reflects the ideal future toward which a plan guides collective action. The vision establishes the foundation for the plan and is supported by goals, objectives, and performance measures and targets developed by the CAC in collaboration with the Evansville MPO.

The Evansville-Henderson region will have a balanced multimodal transportation network. Expanded mobility options will improve the quality of life and health for all users and generate increased economic opportunities. Sustainable and resilient practices will reduce environmental impacts and increase safety and security in the region.

The Infrastructure Investment and Jobs Act

The MTP 2050 has been developed to comply with the Infrastructure Investment and Jobs Act (IIJA). Also known as the Bipartisan Infrastructure Law, the IIJA was signed into law on November 15, 2021. The IIJA provides approximately $550 billion in new spending on the nation's infrastructure over the next five years and maintains focus on safety, keeps intact the established structure of the various highway-related programs, continues efforts to streamline project delivery and provides a dedicated source of federal dollars for freight projects.

The IIJA builds on the previous transportation bill, the FAST Act (Fixing America's Surface Transportation Act), that was enacted in 2015. Provisions carried forward from the FAST Act include making federal surface transportation more streamlined, performance-based and multimodal; addressing challenges facing the U.S. transportation system, including improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight improvement; protecting the environment; and reducing delays in project delivery.

The IIJA places a high importance on incorporating sustainability and resiliency practices into the transportation planning process. This also includes several new programs that will help communities prepare for and mitigate damage from extreme events that are projected to become more common due to climate change. These programs include the Carbon Reduction Program (CRP), the Bridge Investment Program (BIP) and the Safe Streets and Roads for All (SS4A) discretionary program.

Planning Factors

The MTP 2050 was developed taking into consideration the mandated Planning Factors from previous transportation bills. These planning factors include:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- Enhance travel and tourism.

NEW PROGRAMS IN IIJA

The Carbon Reduction Program provides funding for projects that can reduce carbon dioxide emissions, including installation of infrastructure to support the electrification of freight vehicles or personal cars, to constructing Bus Rapid Transit corridors, to facilitating micromobility and walking.

The Bridge Investment Program aims to provide funding for a dedicated grant program to replace and repair bridges and culverts. The program sets aside more than $12 billion in funding over the next four years with the goal to support projects to improve bridge and culvert condition, safety, efficiency, and reliability.

The Safe Streets and Roads for All is a discretionary program that will provide $5-$6 billion in grants over the next five years. Funding supports regional, local and Tribal initiatives through grants to prevent roadway deaths and serious injuries. This program supports the National Roadway Safety Strategy.

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The demographic characteristics and employment sectors of a community can have an impact on the transportation network. Understanding past and present trends can help determine future growth, allowing for transportation decisions to be made that can benefit everyone. This information can help plan for updated roadway projects, new transit connections, and expansion of greenway and bicycle networks.

Past and present data from the 2020 Census (U.S. Census Bureau) was collected as part of the planning process. Projections through 2050 are from Woods & Poole Economics that were determined using data from the U.S. Census Bureau. The current urbanized area is based on 2010 Census data. An updated boundary, if necessary, will be determined in early 2023 based on 2020 Census data.

02 REGIONAL ASSESSMENT

Henderson Riverwalk - Henderson

Population

The Census Bureau defines population as all people, of any sex or age, living in a given geographic area. The population in the three-county region has been increasing over the last six decades and was just under 289,000 people during the 2020 Census. The population is expected to increase to nearly 312,000 people in 2050 based on the 2022 Woods & Poole Economic data – nearly an 8% increase over the next 30 years. This continues the steady growth the region has experienced over the last 30 years.

Warrick County has seen the highest increase in growth, with a majority of growth happening in and around the Ohio Township area. Vanderburgh County grew by 0.24% between 2010 and 2020, while Henderson County saw a decrease of 3% of their population.

Figure 2.1 shows past population trends and future projections for the three-county area and past trends for the urbanized area. Figure 2.2 shows population growth by county.

Figure 2.1: Population Trends and Future Projections

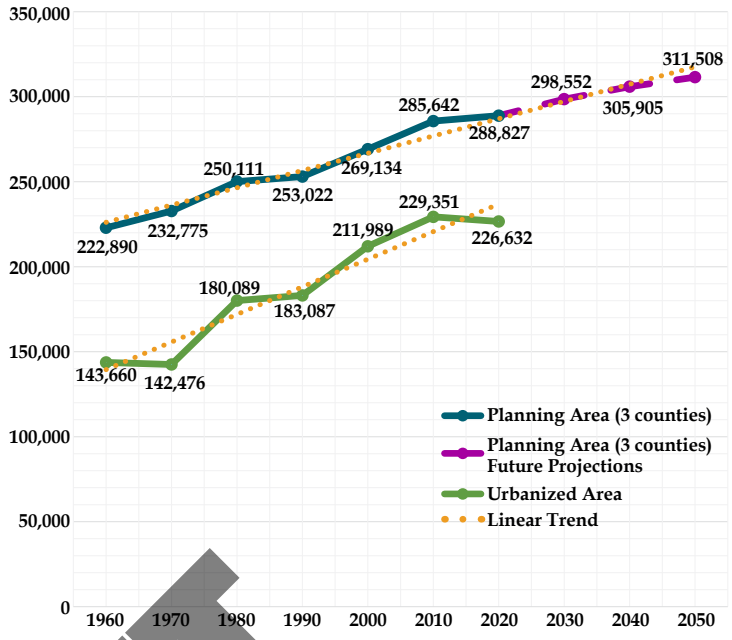
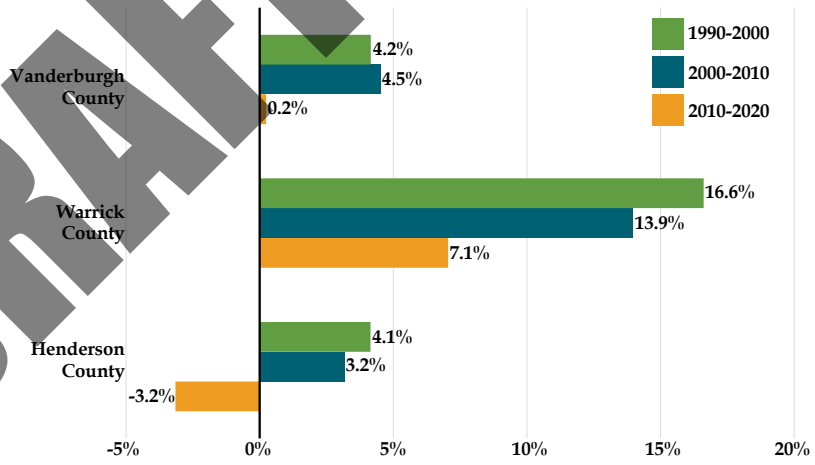


Figure 2.2: Population Growth by County per Decade



Environmental Justice

According to the U. S. Environmental Protection Agency (EPA), environmental justice is defined as "the fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income and educational levels with respect to the development, implementation and enforcement of protective environmental laws, regulations and policies."

The MPO has identified EJ Population Areas based on census tracts with concentrations of underserved and disadvantaged populations. These areas are considered when planning for transportation projects to ensure projects do not cause a disproportionately high and/or adverse impact.

The EJ Population Areas were developed based on 2016-2020 American Community Survey (ACS) data from the U.S. Census Bureau. Percentages for the following factors were gathered for all 89 census tracts in Vanderburgh, Warrick and Henderson counties:

- individuals below poverty;
- individuals age 65 and older;
- minority population;
- Hispanic population;
- individuals with limited English proficiency (speak English "less than very well");
- individuals with a disability; and
- households with no vehicles.

A three-county regional percentage for each factor was determined, and this percentage is considered to be the EJ Population Threshold. If the percentage of a census tract for an individual factor exceeds the EJ Population Threshold in more than one factor, it is considered to be an EJ Population Area.

For each census tract, EJ Population Tiers were created based on the number of factors within the census tract that exceeded the Threshold. Below are the EJ Population Area Tiers:

- Tier 1: Exceeds 6-7 EJ Population Thresholds
- Tier 2: Exceeds 4-5 EJ Population Thresholds
- Tier 3: Exceeds 2-3 EJ Population Thresholds

A map of the EJ Population Areas is shown in Figure 2.3.

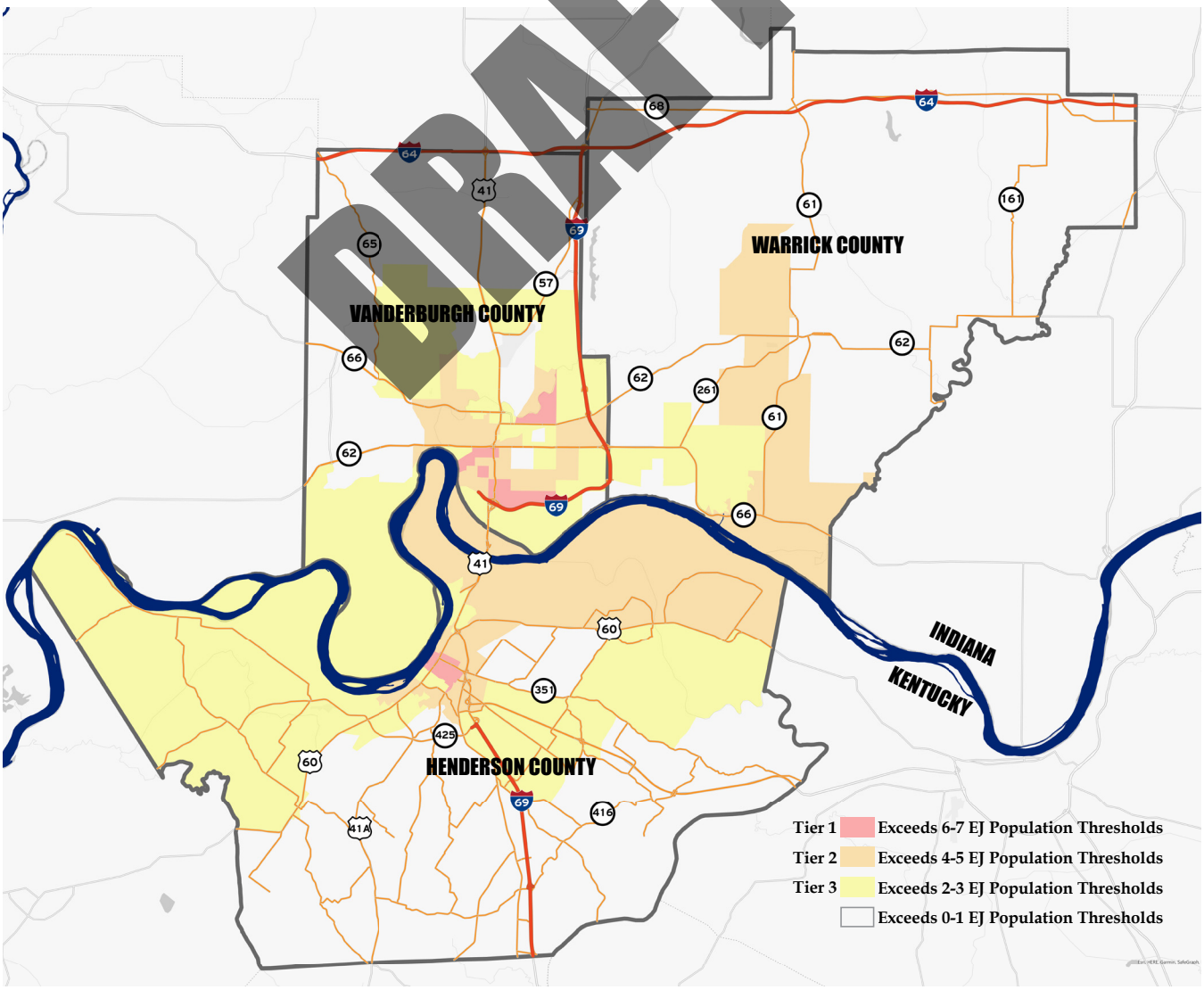
ENVIRONMENTAL JUSTICE

Environmental Justice: fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income and educational levels with respect to the development, implementation and enforcement of protective environmental laws, regulations and policies

EJ Population Factor	Vanderburgh	Warrick	Henderson	3-County Total
Individuals below poverty	16.1%	6.0%	18.2%	14.2%
Individuals age 65 and over	16.9%	17.4%	17.6%	17.1%
Minority Population	15.3%	7.5%	13.0%	13.3%
Hispanic Population	2.6%	1.7%	2.5%	2.4%
Individuals with Limited English Proficiency (speak English "less than very well"	1.6%	1.0%	1.0%	1.4%
Individuals with a disability	15.0%	12.2%	21.7%	15.5%
Households with no vehicles	7.6%	2.1%	7.4%	6.5%

The table shows the percentage of each county, plus the 3-county percentage, for each EJ population factor. The 3-county percentage is considered to be the EJ Population Area Threshold.

Figure 2.3: Environmental Justice Population Areas



Employment

Understanding where people work and how they get there can support planning efforts in determining future roadway networks and improvements. The region's major employers are primarily located in or near downtown Evansville, with the exception of hospitals, schools, and a few manufacturers. Employers with 500 employees or more are shown in Table 2.1.

According to the Bureau of Economic Analysis (BEA), the region's employment decreased by 4.1% between 2016 and 2020. The only county with employment growth in the region was Warrick County with a 1.7% increase in total employment.

According to 2022 Woods and Poole Economic data, the total employment of the three-county region is anticipated to increase by over 21,000 between 2020 and 2050, an increase of more than 11%. Services, such as healthcare, education, food services and government jobs, are projected to grow by nearly 27% by 2050. Retail, manufacturing and other sectors are projected to decline. Current and projected employment is shown in Figure 2.4.

Figure 2.4: Current and Projected Employment

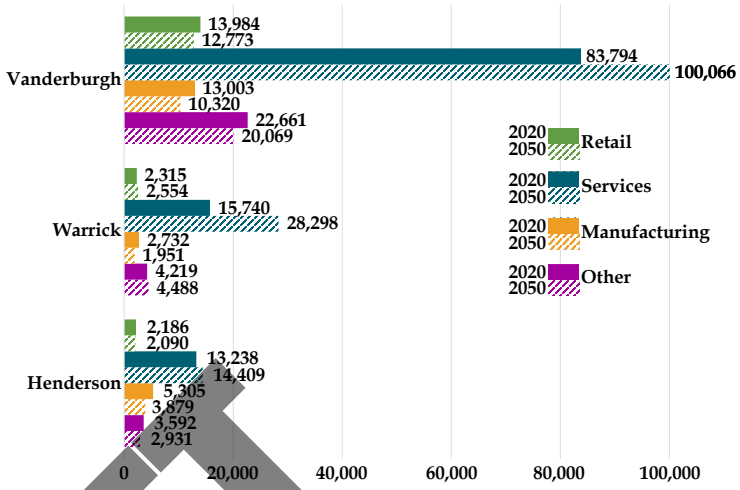


Table 2.1: Major Employers in the Region

	Company	Product/Service	Employees
Vanderburgh	Deaconess Health System (HQ)	Medical Services	4,800
	Evansville Vanderburgh School Corp.	Education	3,450
	Ascension St. Vincent	Medical Services	3,000
	Berry Global	Injection-molded Plastics	2,803
	Koch Enterprises	Industrial and auto parts manufacturing	2,400
	TJ Maxx	Distribution center	2,300
	University of Southern Indiana	Education	2,119
	OneMain Financial	Financial services	1,250
	Metronet	Communications	1,142
	Skanska	Construction and Engineering	1,076
	CenterPoint Energy	Utility: gas and electric	1,000
	Old National Bank	Financial services	920
	University of Evansville	Education	915
	Reckitt	Healthcare	792
Warrick	Kaiser Aluminum Warrick	Aluminum sheet and ingot	2,400
	Deaconess Gateway	Medical Services	1,500
Henderson	Tyson Foods	Poultry processing and packaging	1,501
	Henderson County Schools	Education	1,095
	Deaconess Henderson	Medical Services	934
	Gibbs Die Casting	Aluminum and magnesium die casting	793
	Century Aluminum	Aluminum extrusion billet and ingots	515

Commuting Patterns

Understanding where people travel to work is important for determining regional transportation needs. More than 67% of the residents within the three-county region work within the same county in which they reside. Figure 2.5 shows the percentage of residents that live and work in the same county and those that commute outside of their county of residence.

Just over 12,000 workers commute outside of the region, but approximately 21,200 commute into the region. Table 2.2 shows the commuting patterns of workers in and out of the three counties, including those that live and work in the same county.

Figure 2.5: Place of Work

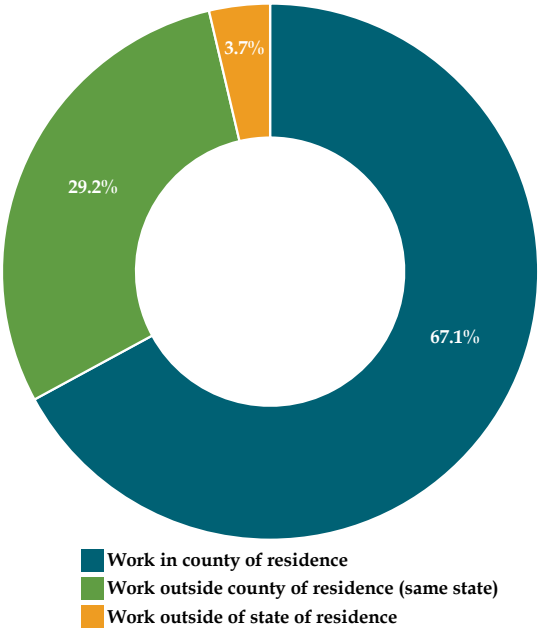


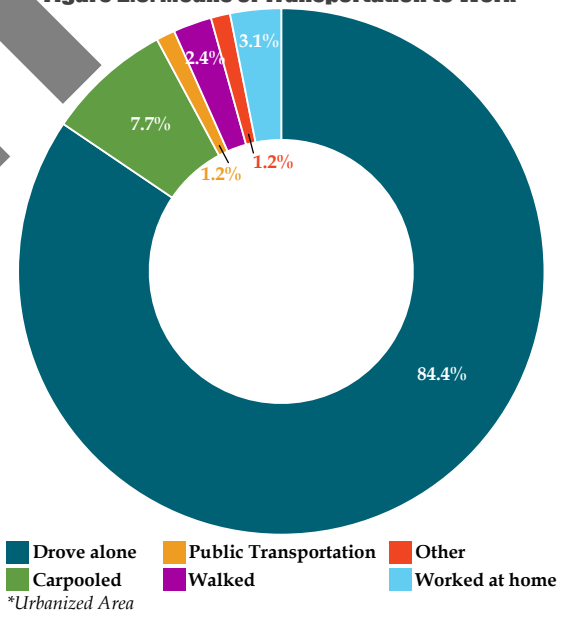
Table 2.2: Commuting Patterns

		From			
		Vanderburgh	Warrick	Henderson	Other
To	Vanderburgh	72,470	15,219	3,254	14,896
	Warrick	3,817	10,658	394	2,299
	Henderson	1,342	525	9,496	4,047
	Other	7,360	3,158	2,240	

Means of Transportation to Work

The personal vehicle is the most common means of transportation to work for the Evansville MPO Area. Based on the 2020 ACS, 92% of workers in the urbanized area drive to work in a personal vehicle, either alone or carpool. Only 1.2% of the urbanized area population take public transportation to work. This is a slight decrease from 2016 when about 1.5% of the population took public transportation. This follows the National trend of decreased transit ridership after the start of the COVID-19 pandemic. Means of transportation to work is shown in Figure 2.6.

Figure 2.6: Means of Transportation to Work*



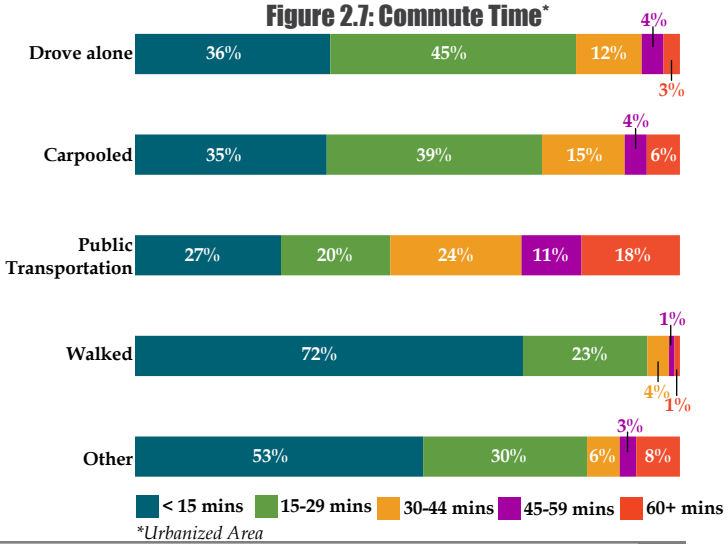
*Urbanized Area

Commute Time

The average commute time to work increased for all commuters in the urbanized area between 2016 and 2020. In 2016, the average commute time was 19.6 minutes. In 2020, the average increased to 20 minutes.

Most workers commuting by car travel less than 30 minutes to work. Commute times are longer for people taking public transportation. The majority of people that walk to work spend less than 15 minutes commuting. Commute times are shown in Figure 2.7.

Figure 2.7: Commute Time*



*Urbanized Area

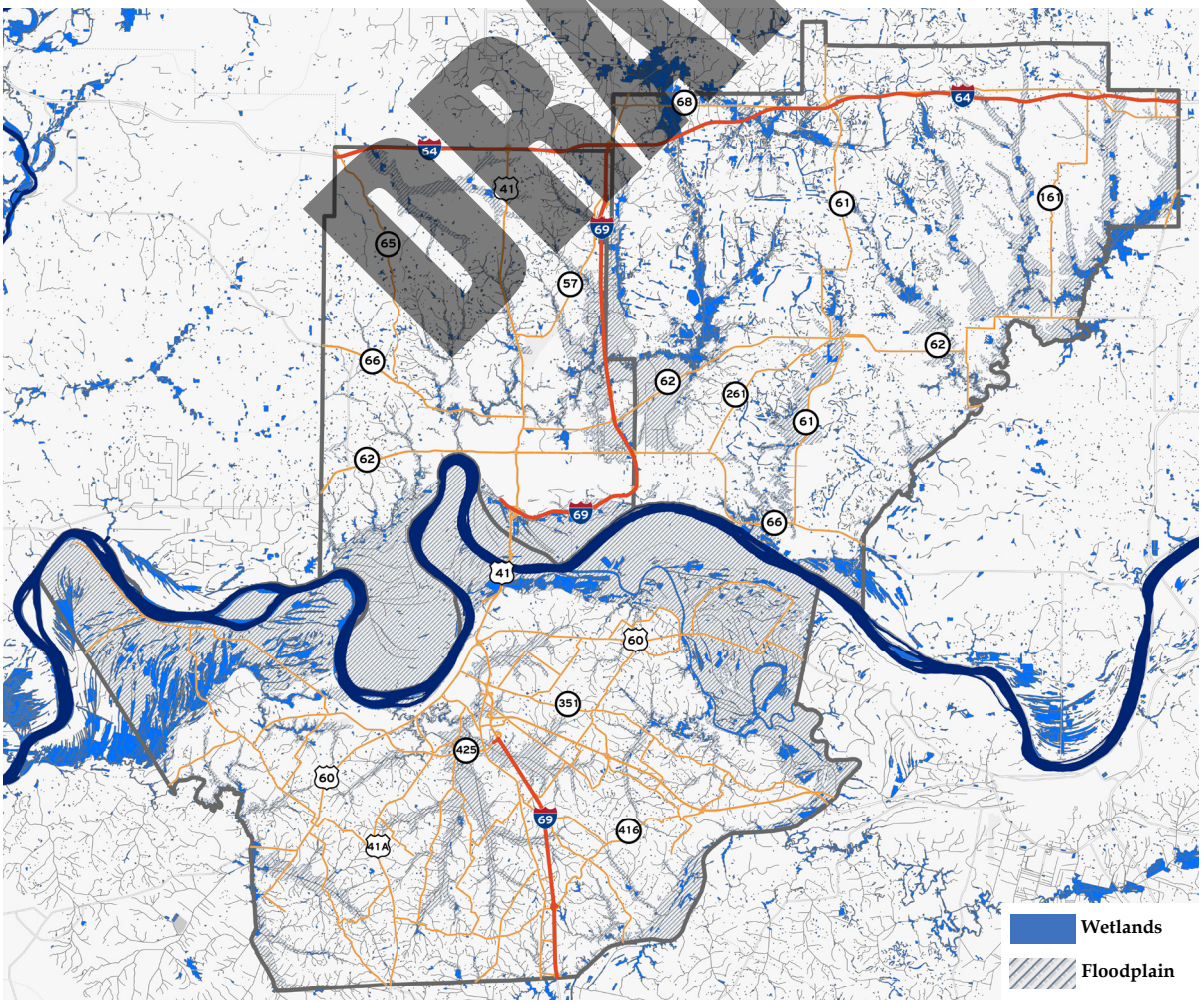
Environmental

Understanding how transportation improvement projects can impact the environment is a critical element in the planning process. It's important to anticipate the impacts and make every effort during planning and design phases to ensure that any unnecessary environmental impacts are avoided when possible. When environmental impacts can't be avoided, it's critical to minimize the impacts and mitigate for those impacts when feasible.

Discussion of types of potential mitigation activities developed in consultation with Federal, State and Tribal land management, wildlife and regulatory agencies is required as part of the planning process. This discussion is at the policy/strategy level, not project specific. The policy level discussion considers the preliminary nature of project details available at the long-range plan stage of project development. While detailed environmental analysis is not appropriate at this point, consultation with environmental resource agencies provides an opportunity to compare transportation plans with resource plans and initiate a discussion of potential mitigation activities, location of mitigation activities and identification of mitigation strategies with the greatest potential to restore and maintain environmental functions affected by the MTP. Chapter 3 lists resource, tribes, and regulatory agencies solicited for input to the plan.

Projects advancing to construction require additional study and detailed design to more clearly describe project features. This process enables environmental impacts and appropriate mitigation measures to be established. Projects using state or federal funds will require detailed environmental study and permitting in conformance with the National Environmental Policy Act (NEPA) and other federal, state and local regulations. A preliminary environmental assessment was completed to identify red flags within ½ mile of the proposed project areas. It is included in Appendix A. Figure 2.8 shows the 100-year floodplain and NWI Wetlands, two major environmental features reviewed during the planning process.

Figure 2.8: Wetlands and Floodplains



Climate Trends and Extreme Weather Events

Climate trends summarize the long-term change in average weather patterns. These changes can be caused by natural variability in climate as well as by human activities that release Greenhouse Gases (GHG), also known as heat-trapping-gases, to the atmosphere.

Earth's temperature has risen by 0.14°F per decade since 1880, but the rate of warming since 1981 is more than twice that at 0.32°F per decade. Nine of the ten warmest years on record occurred from 2013-2021. Figure 2.9 shows the NASA Earth Observatory depiction of Global Temperature Anomaly compared to the average from 1951-1980.

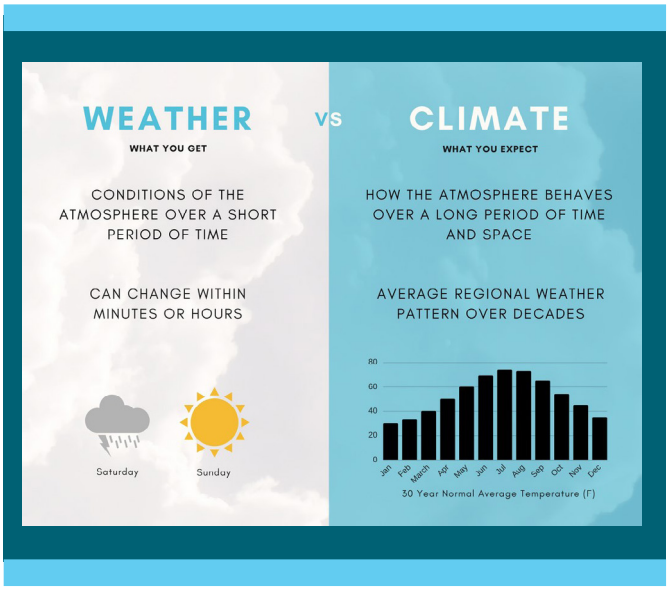
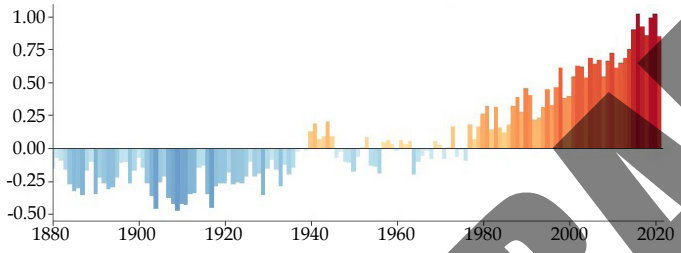


Figure 2.9: Global Temperature Anomaly



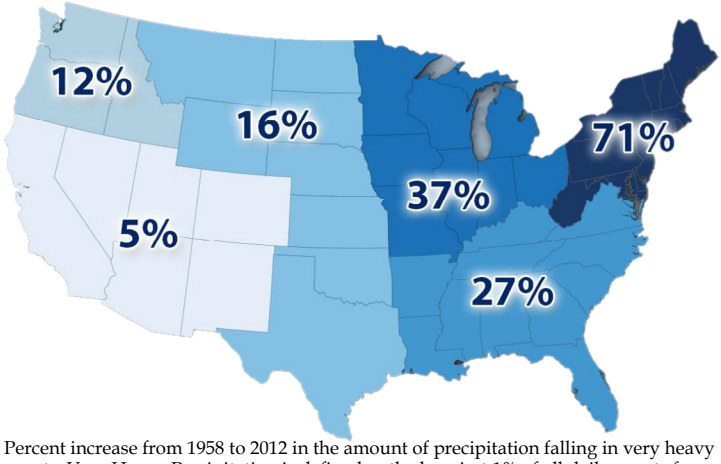
2021 ties 2018 for Sixth Warmest Year on Record
Global Temperature Anomaly (°C compared to the 1951-1980 average)

According to the Intergovernmental Panel on Climate Change's (IPCC) sixth assessment report, average global precipitation trends have changed, with an increase in the frequency and intensity of heavy downpour events over land since 1950. Since the 1980's, the rate of increased precipitation has accelerated. Figure 2.10 shows Climate Central's map of percent heavy downpours increase. Projections show that heavy downpour events that normally occurred approximately once every 20 years are instead projected to occur every 5-15 years by the end of the century.

Due to warming temperatures, agricultural and ecological droughts have increased in part to evaporation of moisture from soils. With projected higher average global surface temperatures and changes to seasonal precipitation, the likelihood of more frequent and intense droughts is significant. Summer droughts are projected to become more intense and frequent in the U.S. due to extreme heat and longer dry spells. The National Climate Assessment reports that both wet and dry extreme weather events are projected to increase significantly across the globe. These extreme weather events have already cost the U.S. billions, and costs will continue to increase as these weather events intensify.

Additional information can be found in Appendix B.

Figure 2.10: Heavy Downpours



Percent increase from 1958 to 2012 in the amount of precipitation falling in very heavy events. Very Heavy Precipitation is defined as the heaviest 1% of all daily events from 1958-2012.

Source: Kenneth Kunkel, Cooperative Institute for Climate and Satellites, North Carolina State University and NOAA N

Roadway Network

The Evansville Metropolitan Planning Area (MPA) contains over 3,000 miles of roadways. The road network is the primary component of the transportation system in the region. The network directly supports the movement of people and freight through the region.

There are two main jurisdictions that operate and maintain roadways in the region. The Indiana Department of Transportation (INDOT) and the Kentucky Transportation Cabinet (KYTC) own and operate the interstates, parkways, U.S. highways and state roads in both Indiana and Kentucky. Local Public Agencies (LPAs) own and operate most of the remaining public roadways. Figure 2.11 shows the State vs. Local roadways.

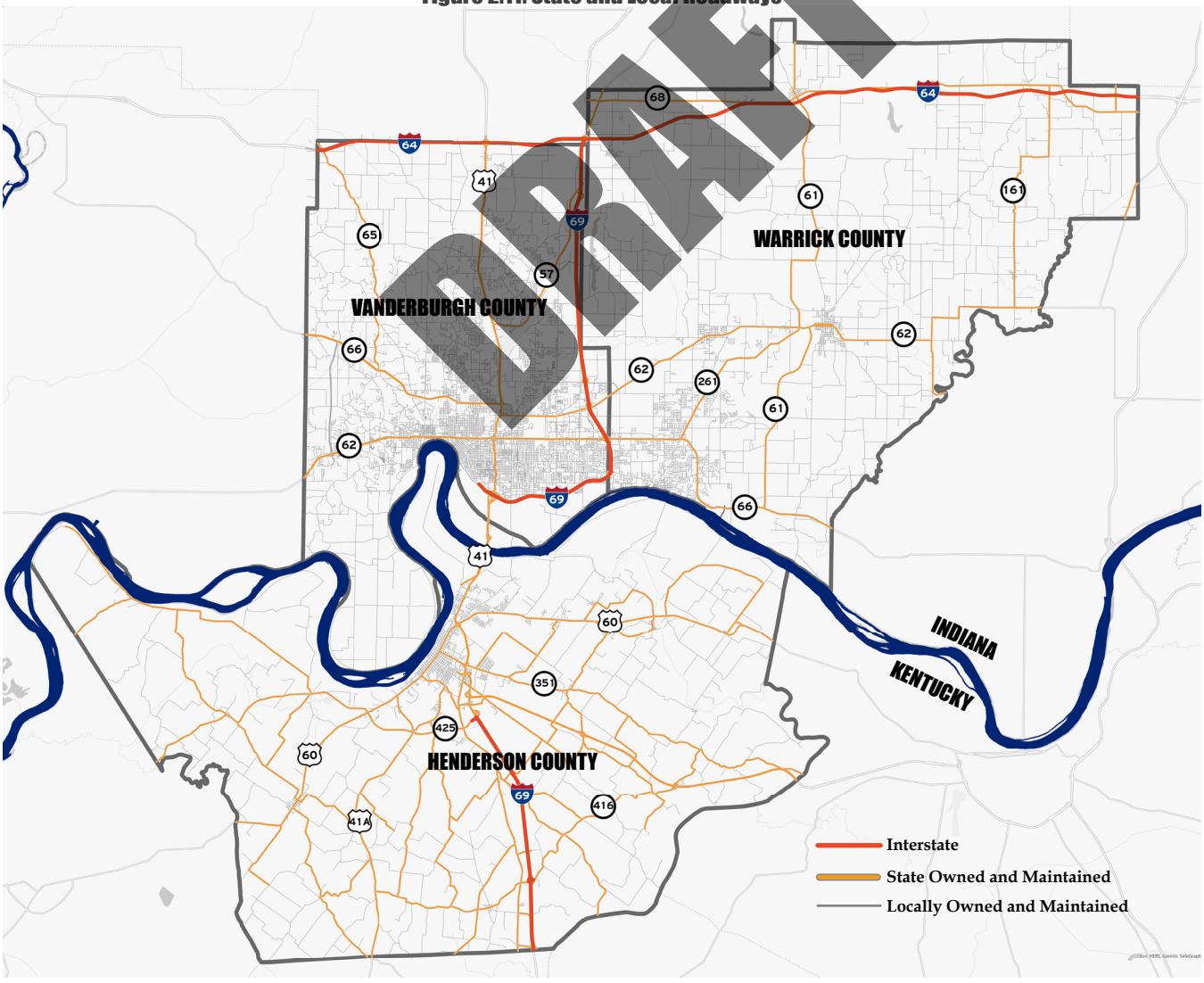
National Highway System (NHS)

The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. The NHS was developed by the Department of Transportation (DOT) in cooperation with states, local officials, and MPOs, and includes the following subsystems of roadways (specific routes may be part of more than one subsystem):

Interstate: The Eisenhower Interstate System of highways retains its separate identity within the NHS.

Strategic Highway Network (STRAHNET): This is a network of highways which are important to the United States' strategic defense policy and provides defense access, continuity and emergency capabilities for defense purposes.

Figure 2.11: State and Local Roadways

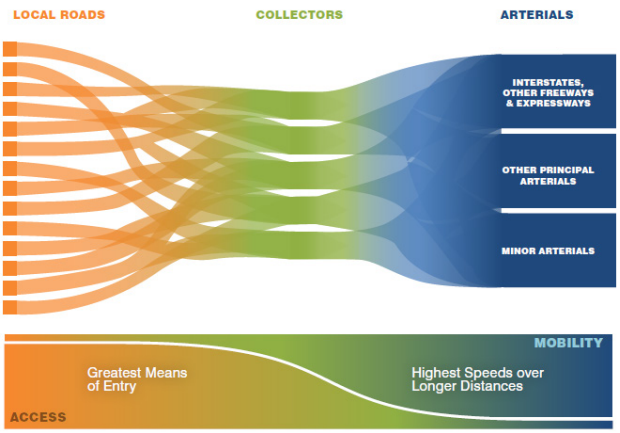


Major Strategic Highway Network Connectors: These are highways which provide access between major military installations and highways which are part of the Strategic Highway Network.

Intermodal Connectors: These highways provide access between major intermodal facilities and the other four subsystems making up the National Highway System.

Functional Classification

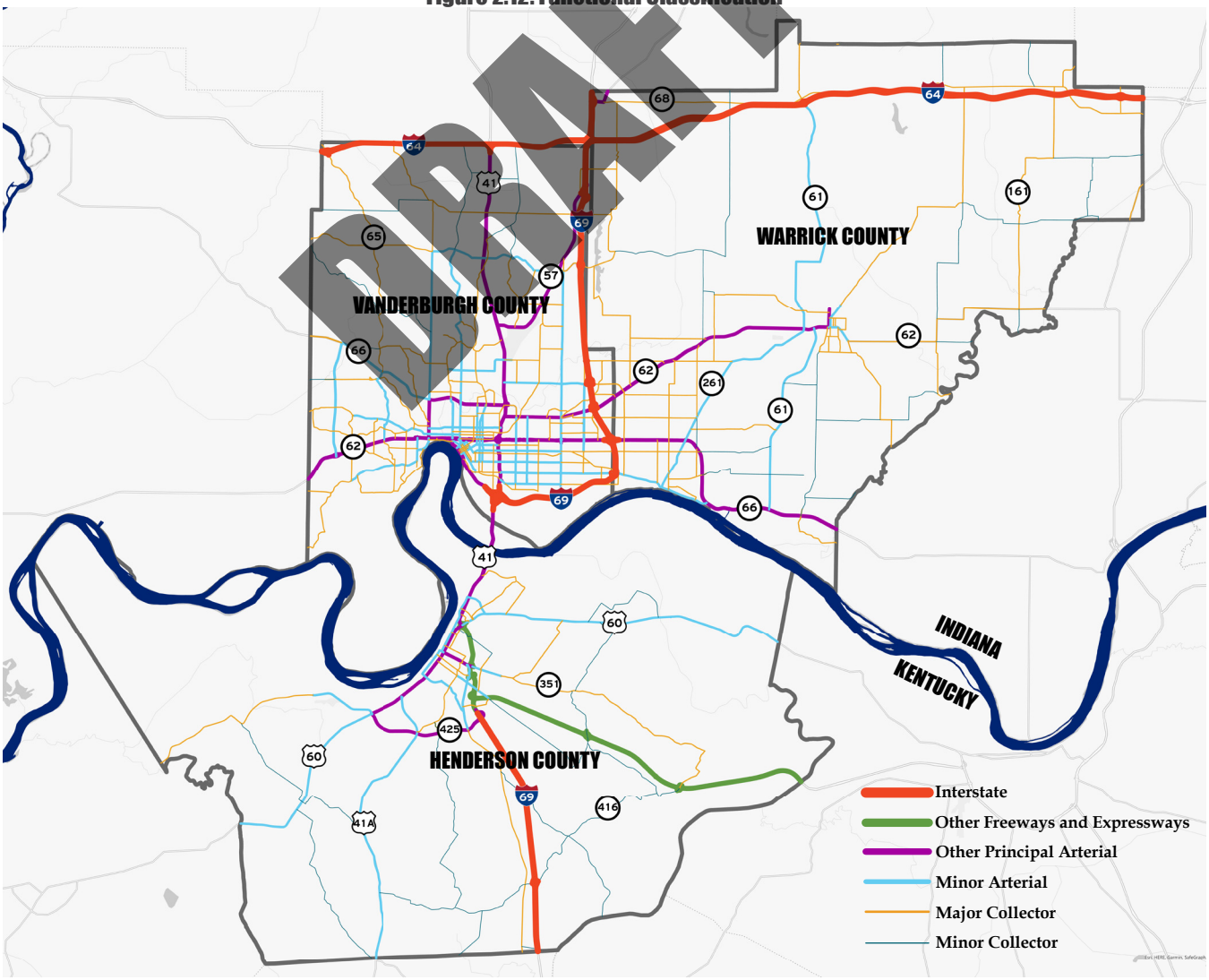
Each type of roadway serves a function in the overall network and is assigned a functional classification based on the intended balance of mobility and access to adjacent land. Their designs vary in accordance with this functional classification. Classifications include freeways/ interstates, arterials, collectors, and local roadways. This hierarchy of roadways is used to properly channel transportation movements through the



network efficiently and cost effectively. Arterials are intended more for mobility than access, while local roads are intended to be used for access to adjacent properties.

Figure 2.12 shows the functional classification of roadways within the MPA.

Figure 2.12: Functional Classification



Traffic Volumes

The traffic volumes map gives an indication of the most heavily traveled roads in the region. Figure 2.13 shows estimated traffic volume data on the functionally classified system for 2021. The data was made available by Streetlight Data (a data platform that uses cellular GPS and Location-Based Services data to generate metrics).

Traffic Congestion

As well as providing estimated volume data for the MPO area, Streetlight Data delivers travel time index for major roads. Travel Time Index (TTI) is a ratio of peak period travel time to the time required to make the same trip during free-flow traffic conditions. The TTI was calculated for the Evansville MPO planning area to classify the facilities with existing congestion. Figure 2.14 shows the level of congested roads traveled in the region on the functionally classified roads of minor collectors and higher. Based on the analysis of travel time index, 6% of the roadway segments classified as minor collectors and higher (66 miles of roadway) are currently experiencing either moderate or heavy congestion (a TTI of 1.31 or more). The data can be utilized as a preliminary tool in identifying congested locations within the MPO area that are not part of the Congestion Management Process (CMP) network.

Figure 2.13: Traffic Volumes

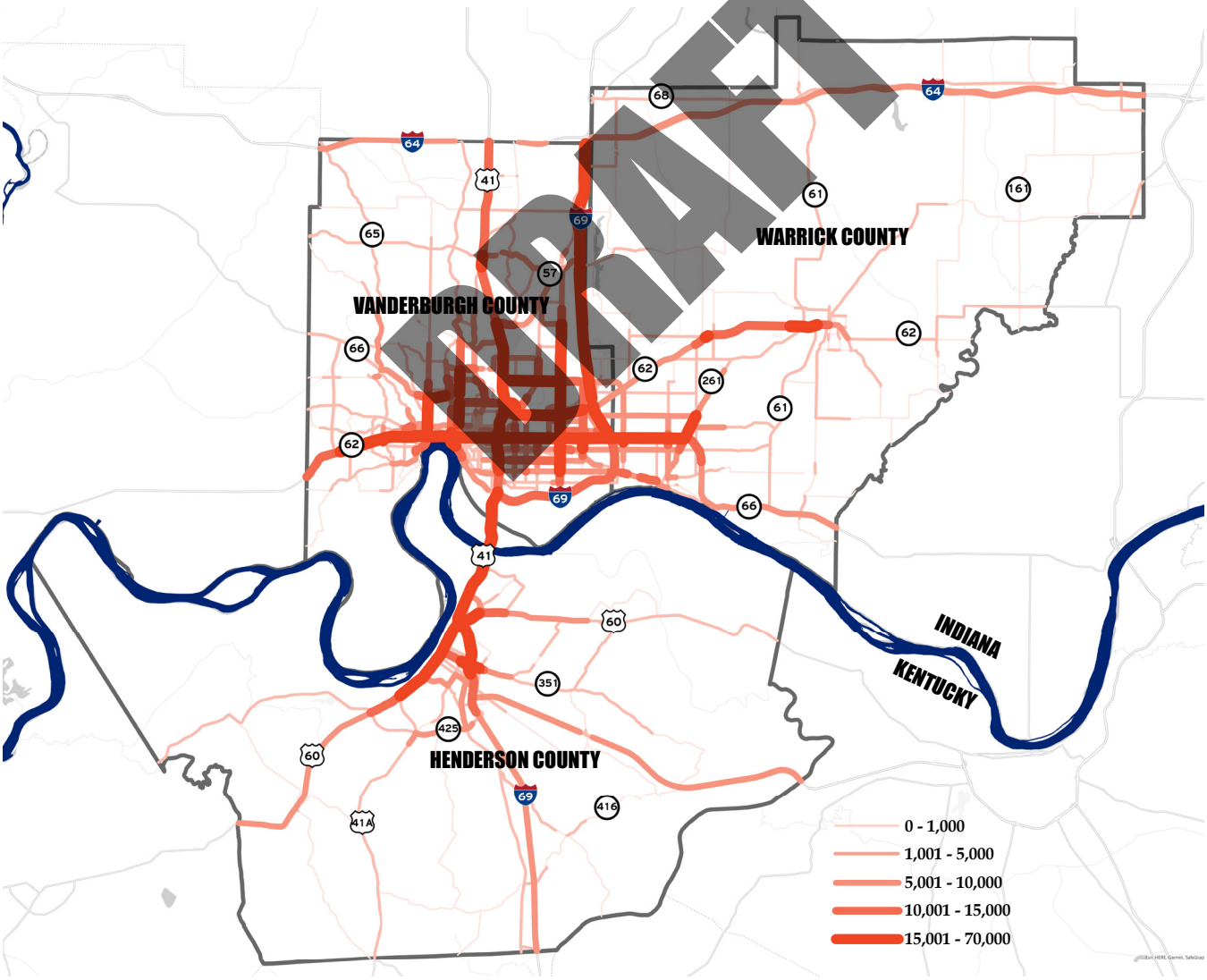
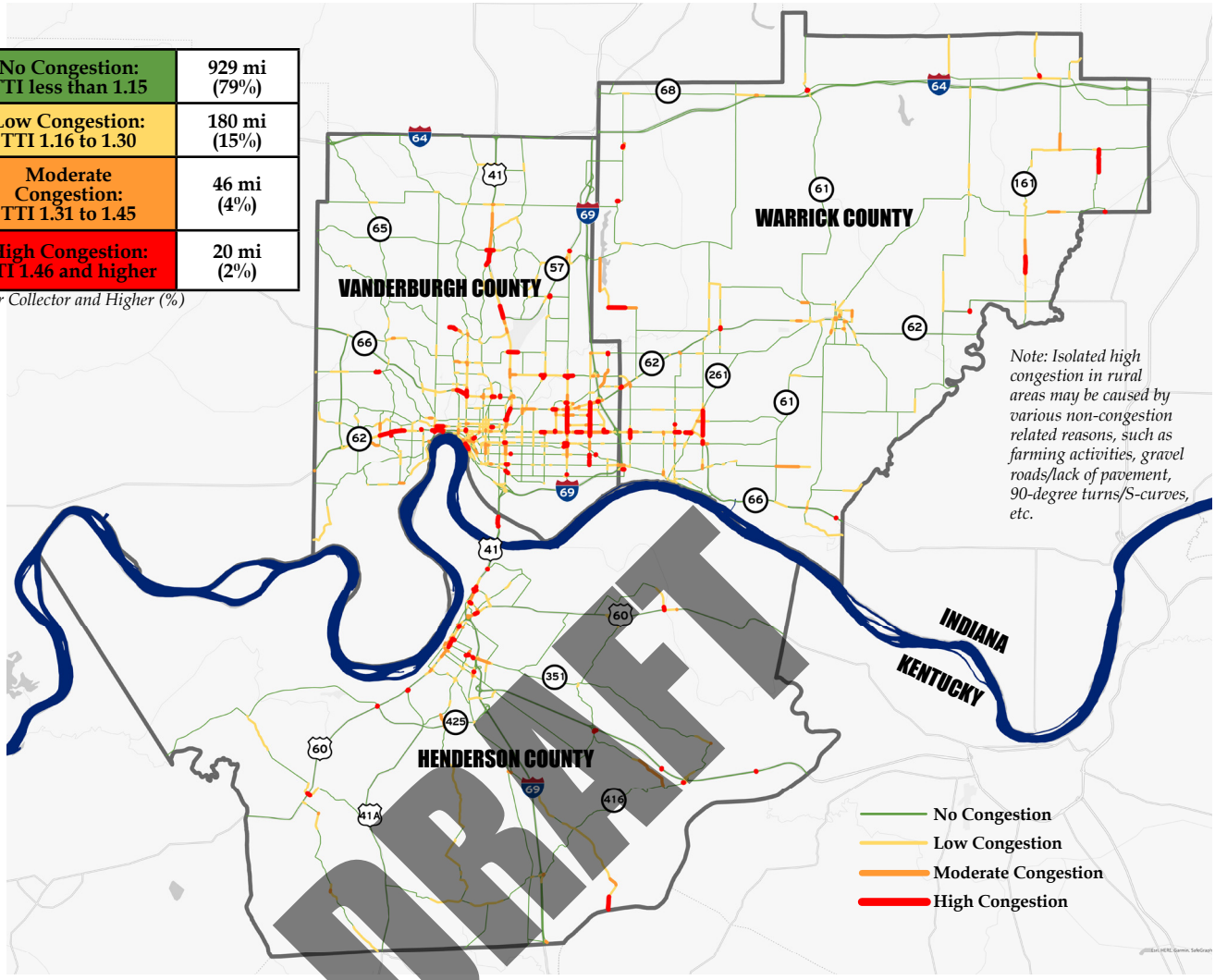


Figure 2.14: Travel Time

No Congestion: TTI less than 1.15	929 mi (79%)
Low Congestion: TTI 1.16 to 1.30	180 mi (15%)
Moderate Congestion: TTI 1.31 to 1.45	46 mi (4%)
High Congestion: TTI 1.46 and higher	20 mi (2%)

Minor Collector and Higher (%)



ROADWAY PLANS AND TOOLS

Access Management Manual and Development Guide: Access management standards are applied to proposed developments in order to maintain the intended service of the adjacent roadways. In 2015, the Evansville MPO in coordination with LPA, INDOT and KYTC engineers undertook an update to the 2005 Access Management Manual. The resulting Access Management Manual and Development Guide was adopted by the Evansville MPO's Technical and Policy Board committees in July 2016. Subsequently, the City of Evansville's Board of Public Works adopted this document as an enforceable technical document.

Pavement Management System: The Pavement Management System assists with planning by finding cost-effective strategies for providing, evaluating, and maintaining pavements in a functional condition. It provides the data required to make decisions to ensure the existing transportation network is preserved and maintained with a cost-effective, long-term practice when compared to costs of major reconstruction.

Travel Demand Model: The Travel Demand Model is used to assist with transportation planning activities. The use of travel demand models and their outputs in regional decision-making was initiated in the mid-1950s and has become a standard for many aspects of planning, including the development of regional transportation plans, air quality conformity determinations, corridor and subarea planning, alternatives analyses, and detailed project planning.

Public Transportation

Public transportation, also referred to as transit, includes all forms of transportation that are available to the public, charge set fares, and either run on fixed routes or provide door-to-door service. In the Evansville MPO's three-county region, this consists of three separate bus systems, one in each county. These bus systems provide an alternative form of transportation to the personal vehicle.

Transit riders vary greatly, but are often categorized into two categories: dependent riders and choice riders. Dependent riders do not have access to a personal vehicle for any number of reasons, including age, income, or disability. Without affordable and reliable public transportation, these individuals cannot access employment, healthcare, recreation, shopping or other everyday activities. In fact, the lack of reliable transportation is one of the greatest barriers to getting the unemployed to available jobs. Public transportation also helps seniors and individuals with a disability remain independent.

Choice riders have access to a personal vehicle, but occasionally prefer the more economical and environmentally-friendly alternative. Some families may only have one vehicle, so public transportation can provide another option.

Regional Transit Providers

The Evansville MPO Planning Area is served by two municipal transit providers and one rural transit provider that are open to the general public. The Metropolitan Evansville Transit System (METS) and Henderson Area Rapid Transit (HART) are both city owned and operated transit agencies. Warrick Area Transit System (WATS) is considered a rural transit system that is operated by Ride Solution, a transportation service provided by Four Rivers Resource Services.

The Metropolitan Evansville Transit System (METS)

METS operates 17 daytime fixed routes Monday through Friday. Most of these routes also operate on Saturday. A limited number of routes run nights and Sundays. Base fare for the general public on fixed routes is $0.75. Fare for students is $0.50 and fare for seniors and individuals with a disability is $0.35. A detailed route schedule is shown in Table 2.3 and METS routes are shown in Figure 2.15.

Table 2.3: METS Route Schedule

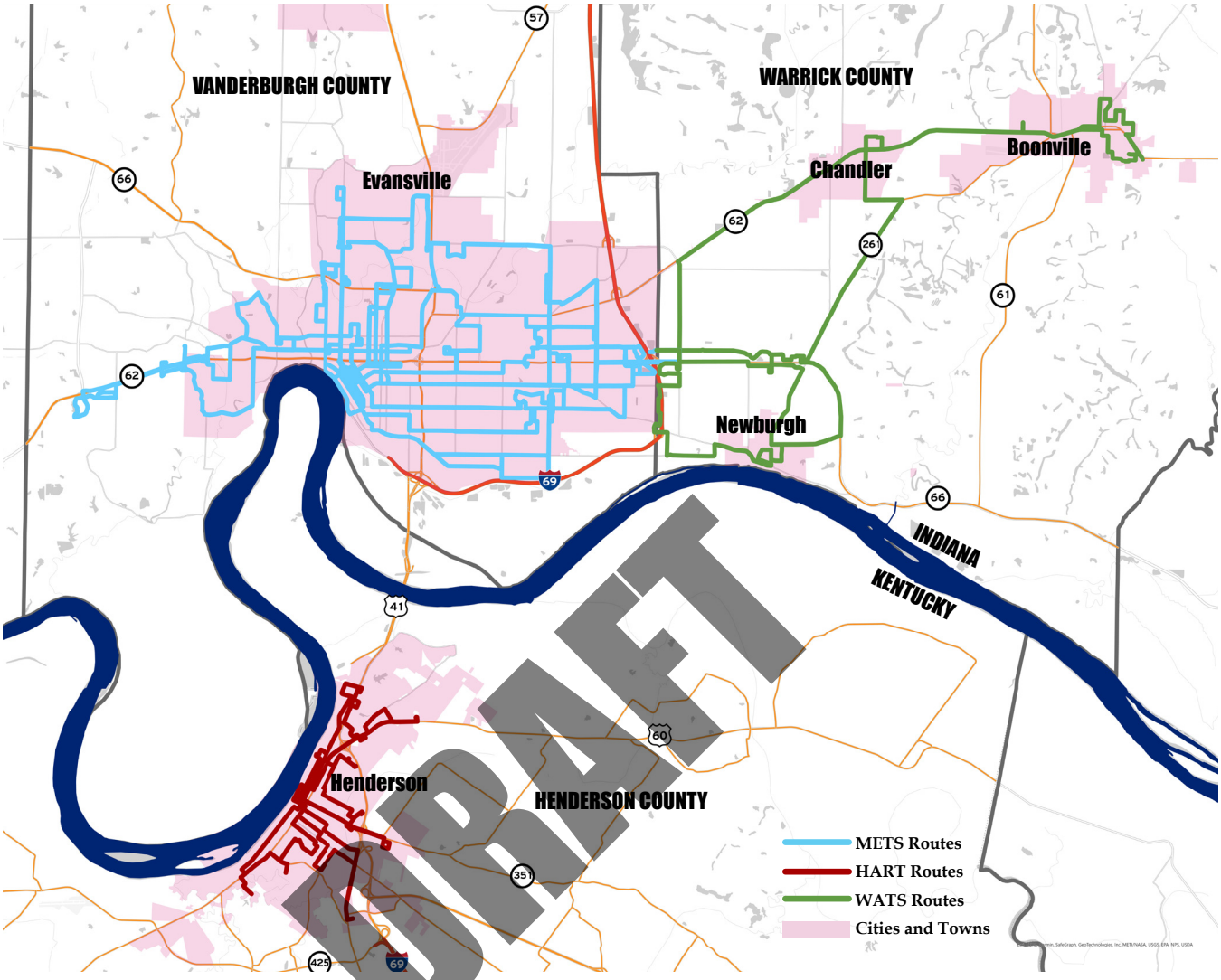
Route		Monday-Friday		Saturday		Sunday
		Day	Night	Day	Night	
Covert	A					
	B					
Covert-Riverside						
Downtown-North Main						
East Connection						
First Avenue						
Fulton						
Howell-Mary						
Lincoln	A					
	B					
Lynch						
Lynch-Walnut						
Mary						
Riverside	A					
	B					
Shopper Shuttle						
Stringtown						
Stringtown-First						
USI Shuttle	1					
	2					
Walnut						
Washington	A					
	B					
West Connection						

- Day routes run 6:15am-6:15pm, except B routes that run 5:45am-5:45pm.
- A routes do not run 10:45am-12:45pm.
- Night routes run 6:15pm-12:15am.
- Sunday routes run 6:15am-6:15pm.
- USI 1 runs 7am-5pm; USI 2 runs 7:30am-9:15pm (stops at 5pm Fridays).
- West Connection runs 6:45am-9:15pm.
- USI and West Connection operate only during Fall & Spring USI semesters.

METS is also required to operate ADA Complementary Paratransit Service in addition to the fixed routes. Referred to as METS Mobility, the paratransit service is offered to individuals 65 years and older or individuals with a documented disability that limits their use of the fixed route system. METS Mobility operates within the city limits of Evansville on the same days and times as the fixed routes. Fare for METS Mobility is $1.50 per one-way trip.

Vanderburgh County currently contracts with METS to provide Mobility service to county residents at a cost of $5 per one-way trip. County service operates Monday through Friday from 8:00 a.m. to 5:00 p.m.

Figure 2.15: METS, HART and WATS Routes



Henderson Area Rapid Transit (HART)

HART operates five fixed routes served by three buses. Two buses run back-to-back 30-minute routes and one bus runs a one-hour route. The routes run Monday through Saturday from 6:30 a.m. to 5:30 p.m. Base fare for the general public on fixed routes is $0.50. Fare for students, seniors, and individuals with a disability is $0.25. A detailed route schedule is shown in Table 2.4 and HART routes are shown in Figure 2.15.

HART must also operate ADA Complementary Paratransit Service in addition to the fixed routes. The paratransit service is referred to as Demand Response and is offered to seniors or individuals with a disability that limits their use of the fixed route system. Demand Response service operates within the city limits of Henderson Monday through Saturday from 6:30 a.m. to 5:30 p.m. Fare for Demand Response is $1.00 per one-way trip.

Table 2.4: HART Route Schedule

Route	Monday-Saturday	
	:00 - :29	:30 - :59
East Gate		
East End		
Weaverton		
North		
Shopper Shuttle		

- Routes start at 6:30am and end at 5:30pm.
- :00 and :30 routes are run back to back.
- East Gate and Weaverton leave the downtown terminal on the hour and arrive back 30 mins after the hour.
- East End and North leave the downtown terminal at 30 mins after the hour and arrive back on the hour.
- Shopper Shuttle is a 1 hour route with a stop downtown every 30 mins.

Warrick Area Transit System (WATS)

WATS operates three fixed routes Monday through Friday from 5:45 a.m. to 6:00 p.m. (Note: each route begins at slightly different times. The route schedule provides details.) Two routes operate in and around Chandler and Newburgh and connect to the METS transfer station and each other, and one route operates in Boonville and connects to the Chandler-Newburgh East route. Base fare for the general public is $1.00. Fare for seniors and individuals with a disability is $0.50. A detailed route schedule is shown in Table 2.5 and WATS routes are shown in Figure 2.15.

Instead of operating an ADA Complementary Paratransit Service, Ride Solution provides two options for seniors or individuals with a disability that limits their use of the fixed route system. One option is a route deviation. A driver will deviate from a route up to ¼ mile to pick up an individual. These route deviations must be scheduled at least two business days prior to the needed ride and cost $2.00. Another option is door-to-door service on a Ride Solution vehicle, which operates throughout Warrick County and can provide rides to other counties. Door-to-door service is $2.00 in-town, $4.00 in-county and $6.00 county-to-county.

Table 2.5: WATS Route Schedule

Route	Monday-Friday	Transfer Time	Transfer Point	Transfer To Routes
Chandler-Newburgh East	6:12am-6:00pm	:35	Newburgh Plaza Shopping Center	Newburgh West
		:55	Stahl Rd	METS & Newburgh West
		:13	Chandler UMC	Boonville
Newburgh West	5:45am-6:00pm	:55	Stahl Rd	METS & Chandler-Newburgh East
		:35	Marcella Point Shopping Center	Chandler-Newburgh East
Boonville	6:24am-6:00pm	:13	Chandler UMC	Chandler-Newburgh East

Chandler-Newburgh East and Newburgh West routes meet at Stahl Road approximately 5 minutes before the hour for METS transfers. METS' Shopper Shuttle stops at Stahl Road approximately on the hour.

Ridership

Transit ridership in the region has been declining slightly over the past several years and significantly declined during the COVID pandemic. Table 2.6 shows ridership for fixed routes and paratransit service for METS and HART. Transit statistics were found in the National Transit Database. The most recent data included is from 2020.

The greatest impact that the pandemic had on METS and HART was mid-2020 through 2021. Ridership was half of what it was in 2019 for much of that time. Ridership has increased slightly starting in 2022, but is still much lower than it was before the pandemic.

Table 2.6: Transit Ridership

		2016	2017	2018	2019	2020
METS	Fixed	1,756,873	1,494,212	1,410,383	1,209,953	703,849
	Paratransit	53,964	67,375	65,126	63,658	36,844
	Total	1,810,837	1,561,587	1,475,509	1,273,611	740,693
HART	Fixed	123,886	121,455	110,975	107,282	89,428
	Paratransit	12,309	11,439	11,018	11,959	8,446
	Total	136,195	132,894	121,993	119,241	97,874

LOCAL TRANSIT PLANS

The Coordinated Public Transit - Human Services Transportation Plan:

The Coordinated Public Transit - Human Services Transportation Plan allows for the region to be eligible for Section 5310 funding. Section 5310 funding helps METS and HART receive funds to purchase buses for their paratransit service and local non-profits to receive funding to purchase vans or buses for their clients. The Evansville MPO amends the Coordinated Plan as changes occur in transportation serving the elderly and individuals with disabilities.

The primary goal of the Coordinated Plan, in addition to Section 5310 eligibility, is to create a collaborative network of transportation services that improve mobility for seniors, individuals with disabilities, and low-income individuals. For many people, public transportation is the only means for accessing medical care, social services, government offices, and other essential services. The Coordinated Plan aids in directing Section 5310 funding to projects that improve transportation options and prevent overlapping services.

Section 5310 Program Management Plan:

The Section 5310 Program Management Plan (PMP) documents how the Evansville MPO will manage the FTA Section 5310: Enhanced Mobility of Seniors and Individuals with Disabilities grant program. The PMP includes the roles and responsibilities of the Evansville MPO and each subrecipient (METS, HART, and non-profits), eligible activities, and how the Evansville MPO selects projects for funding. It also lists the requirements that each subrecipient must follow in order to continue to be eligible for Section 5310 funding.

Transit Asset Management Plan:

In 2018, the Evansville MPO began working with METS and HART to develop the region's first Transit Asset Management (TAM) Plan. The TAM plan recently became a requirement from the FTA, and the initial TAM Plan was required to be completed by October 2018. METS, HART and the Evansville MPO decided to develop a regional TAM Plan in coordination with each other rather than developing individual TAM Plans for both METS and HART. The TAM Plan lists all of METS' and HART's major assets and a plan for replacement as those assets reach the end of their useful life.

Public Transportation Agency Safety Plan:

In 2019, the Evansville MPO began working with METS and HART to develop their first Public Transit Agency Safety Plans (PTASP). The PTASP identifies the safety measures taken by each agency, including a Safety Management Policy, safety hazard identification, safety performance monitoring, and safety promotion. The PTASP also includes safety performance measures, as well as safety targets which are updated annually.

METS and HART Planning:

In addition to the TAM Plan, METS and HART are also responsible for all other FTA required plans beyond the Section 5310 planning. The Evansville MPO provides technical assistance to each agency as requested.

Bicycle and Pedestrian

Active transportation in the forms of walking and bicycling are a demonstrated priority of citizens and policy makers throughout the communities served by the Evansville MPO. Despite these modes sometimes being called "alternatives", for many people, walking or bicycling are their only means of travel. Almost everyone is a pedestrian for at least a portion of each trip taken, as final destinations are arrived at by foot. Additionally, in recent years, rising fuel prices have driven a resurgence of bicycling as an economical and non-polluting transportation choice.

An accessible and connected bicycle and pedestrian network facilitates mode choice for users, lessening dependence on single-occupant vehicle (SOV) travel. Benefits of active transportation include enhanced efficiency of the existing roadway network, better community air quality and positive health and economic impacts. A commitment by local communities to plan for active modes of transportation is a fundamental component of addressing the system-wide transportation needs of the future. Planning and research conducted by the Evansville MPO can serve as a foundation for developing policies and directing investments in active transportation facilities. The acknowledged benefits of walking and bicycling for transportation include:

- Bicycling and walking are inexpensive (or no cost) alternatives to automobile travel;
- Increased exercise from walking or biking often leads to health improvement;
- Bicycling and walking are environmentally sustainable ways to travel;
- Reductions in automobile traffic leads to improved quality of life for individuals and community; and
- Active transportation provides more opportunities for personal interaction with others.

Vanderburgh, Henderson, and Warrick counties all strive to make bicycling and walking a more safe and realistic mode of transportation and form of recreation for residents. Communities in the region recognize the value and importance of providing an accessible bicycle and pedestrian network and have made improvements to their existing bicycle networks in the past several years. Improvements have included greenway extensions, signing bike routes, dedicated bike lanes, and sidewalk and curb ramp repairs. Figure 2.16 shows the existing bicycle and pedestrian network and Table 2.7 shows existing miles.

LOCAL BICYCLE & PEDESTRIAN PLANS

Evansville Bicycle and Pedestrian Connectivity Master Plan:
The Evansville Bicycle and Pedestrian Connectivity Master Plan (BPCMP) was adopted in November 2015 and includes nearly 170 miles of recommended bicycle and pedestrian network improvements.

The Greater Henderson Bicycle and Pedestrian Master Plan:
The Greater Henderson Bicycle and Pedestrian Master Plan was adopted in February 2014 and includes nearly 140 miles of bicycle and pedestrian network improvements.

Warrick Trails:
Warrick Trails, a non-profit organization, has developed a bicycle and pedestrian plan to connect Newburgh, Chandler and Boonville with off- and on-street facilities. The plan, also named Warrick Trails, will provide Warrick County with over 35 miles of bicycle and pedestrian facilities once implemented.

Evansville MPO Complete Streets Policy:
In March 2012, the Evansville MPO adopted the region's first Complete Streets Policy. A Complete Streets Policy promotes roadways that are designed to safely and comfortably accommodate all users of all ages and abilities, including, but not limited to motorists, bicyclists, pedestrians, transit and school bus riders, delivery and service personnel, freight haulers, and emergency responders. The Evansville MPO Complete Streets Policy requires that all projects receiving MPO allocated federal funding adhere to the policy. Because this is an MPO-level policy, local jurisdictions completing projects with only local funds are encouraged, but not required, to adhere to the policy.

City of Evansville's Complete Streets Policy:
On October 25, 2021, the City of Evansville passed its first Complete Streets Policy with unanimous support from all city council members. The ordinance supports improved streets to safely and conveniently accommodate all modes of transportation for a safer, more accessible multimodal network for everyone.

Figure 2.16: Existing Bicycle and Pedestrian Network

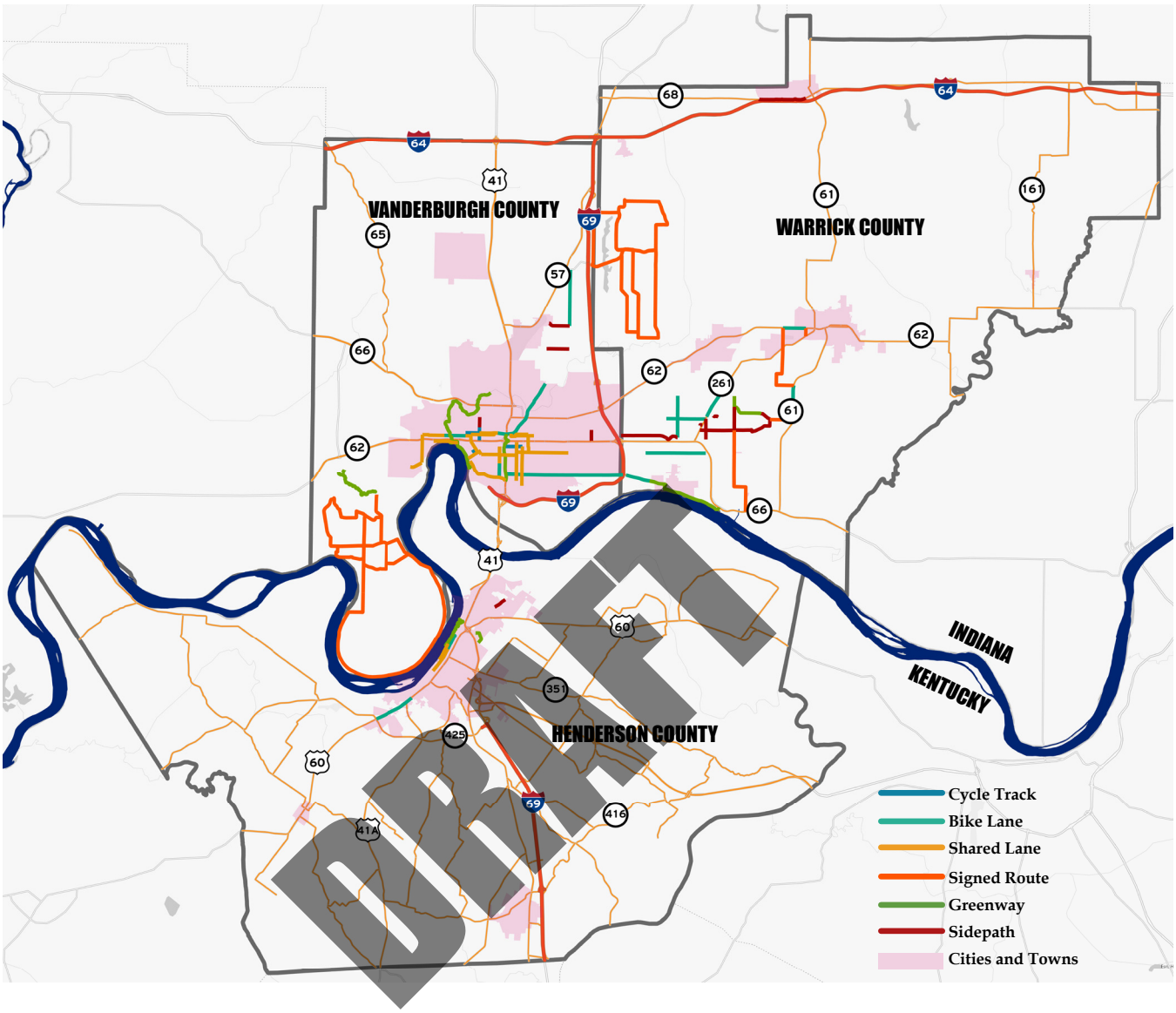


Table 2.7: Existing Bicycle and Pedestrian Network

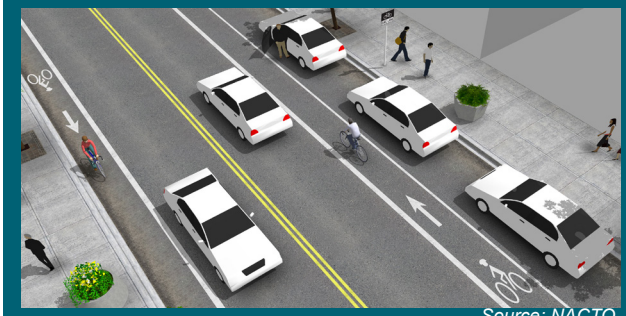
	Total Existing Miles in 2022			Miles Added Since 2018		
	Vanderburgh	Warrick	Henderson	Vanderburgh	Warrick	Henderson
Cycle Track	2.2	0.0	0.0	1.0	0.0	0.0
Bike Lane	13.3	11.6	2.5	9.4	5.3	0.0
Shared Lane	19.3	0.0	2.0	2.3	0.0	0.0
Signed Route	37.8	43.4	0.0	0.0	0.0	0.0
Greenway	11.9	5.4	2.5	1.9	0.8	0.0
Sidepath	2.8	11.1	0.6	0.0	4.3	0.0
Total	87.3	71.5	7.6	14.6	10.4	0.0

UNDERSTANDING BICYCLE FACILITIES

Source: NACTO

Cycle Track:

A cycle track combines the user experience of a separated path with the on-street infrastructure of a dedicated bike lane. It is physically separated from vehicle traffic and distinct from a sidewalk.



Source: NACTO

Bike Lane:

A bike lane is a designated portion of the roadway that is striped, signed and marked with pavement markings to provide space for bicycles only. Bike lanes increase safety and promote proper riding, but typically do not have a physical barrier from vehicle traffic like cycle tracks.

Source: NACTO

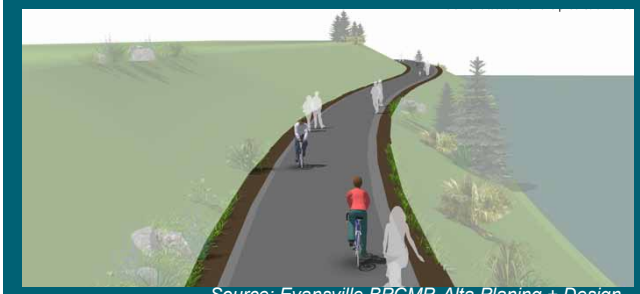
Shared Lane:

Shared lanes, or "sharrows" are road markings that indicate a shared lane environment for bicycles and vehicles. Shared lanes reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance. These are typically used to support a complete bikeway network when space does not allow for separated facilities.

Source: Evansville BPCMP, Alta Planing + Design

Signed Route:

Signed routes are typically marked with wayfinding signs that guide bicyclists along preferred routes, such as the Burdette Park Discovery Trail in Union Township (Vanderburgh County) and the Bluegrass Fish and Wildlife Area (Warrick County). Similar signs can also be placed along shared routes to direct bicyclists to destinations or indicate where shared lanes turn from one street to another.



Source: Evansville BPCMP, Alta Planing + Design

Greenway:

A greenway, or trail, is a paved facility that is separated from vehicle traffic and often times not parallel to the street. A greenway is typically paved and accommodates bicyclists, walkers, runners, skaters and skateboarders, and wheelchairs.

Sidepath:

A sidepath is similar to a greenway in that it can accommodate many users, but is typically adjacent to the roadway.

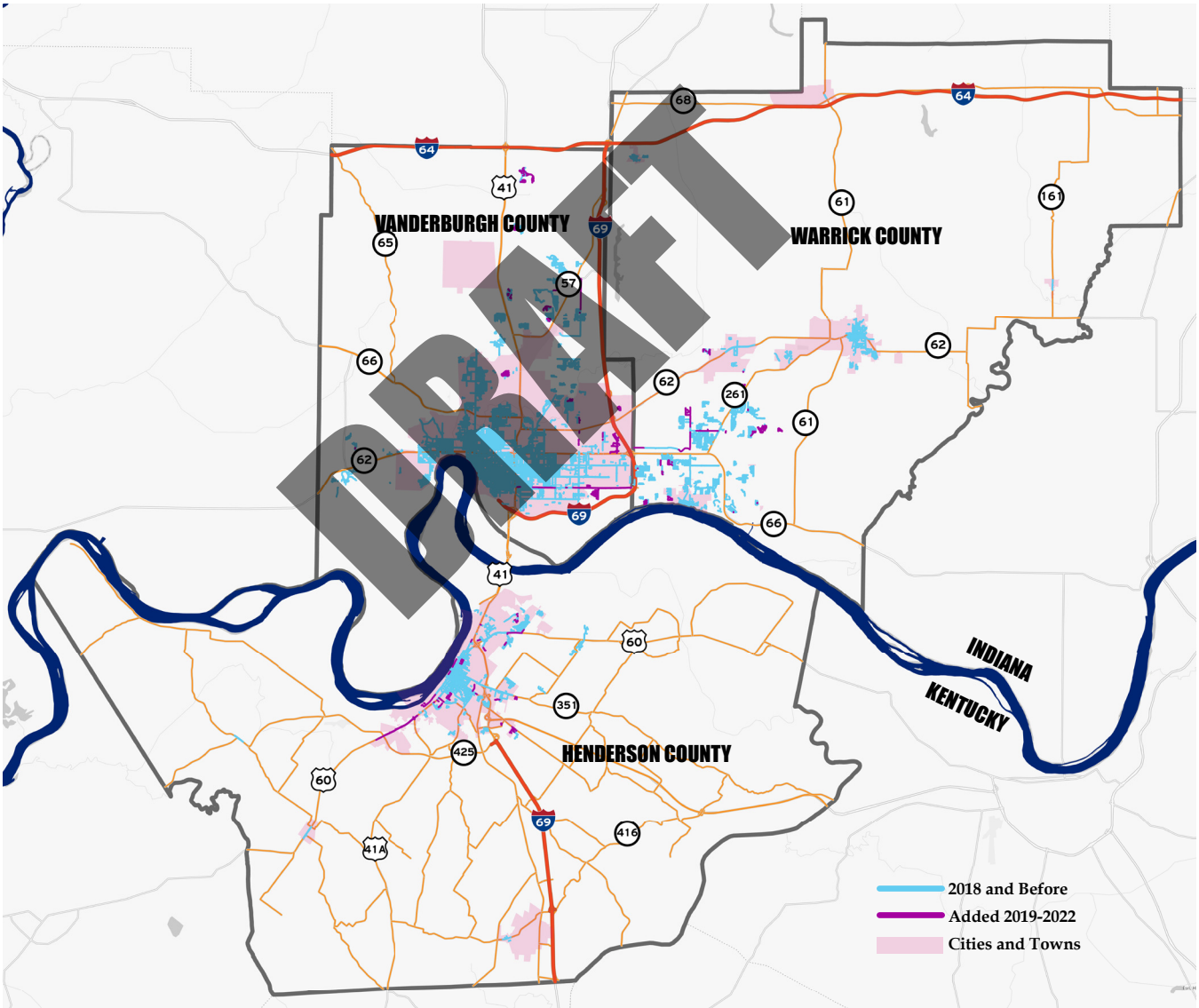
Sidewalks

In 2018, Vanderburgh, Warrick and Henderson counties had a combined 879 miles of sidewalks. By 2022, another 55 miles of sidewalk were constructed, making the regional sidewalk network a combined 933 miles. Of the sidewalks that have been constructed since 2018, a majority are located within residential subdivisions. Table 2.8 shows sidewalk numbers by county, and Figure 2.17 shows the locations of sidewalks.

Table 2.8: Existing Sidewalks

	Total Existing Miles in 2022	Miles Added Since 2018
Vanderburgh	628.6	29.9
Warrick	185.8	13.5
Henderson	119.0	11.6
Total	933.5	55.0

Figure 2.17: Existing Sidewalk Network



UPGRADE BIKESHARE

In September 2016, the Evansville Trails Coalition, in partnership with Welborn Baptist Foundation's Upgrade Initiative, launched the first bikeshare program in Evansville. This program has been a success with over 6,500 active members that have taken more than 12,000 rides. In October 2018, the program expanded to Henderson, KY. Stations are currently located at:

- **Evansville Riverfront at the Four Freedoms Monument**
- **Haynie's Corner, adjacent to Alhambra Theater**
- **Downtown YMCA at 6th St and Court St**
- **Corner of North Main St and Michigan St**
- **West Franklin St and Wabash Ave**
- **Ivy Tech Community College at First Ave and Colonial Ave**
- **Water St in Henderson, KY**

Source: Evansville Trails Coalition

Mobility Management

Mobility management is an innovative and relatively new approach to managing and delivering a coordinated transportation network that includes all forms of transportation for all users. The goal of mobility management is to meet the individual transportation needs of everyone through multiple transportation options and service providers. It also emphasizes coordinating these services and providers to achieve a more efficient multimodal, multi-agency transportation network.

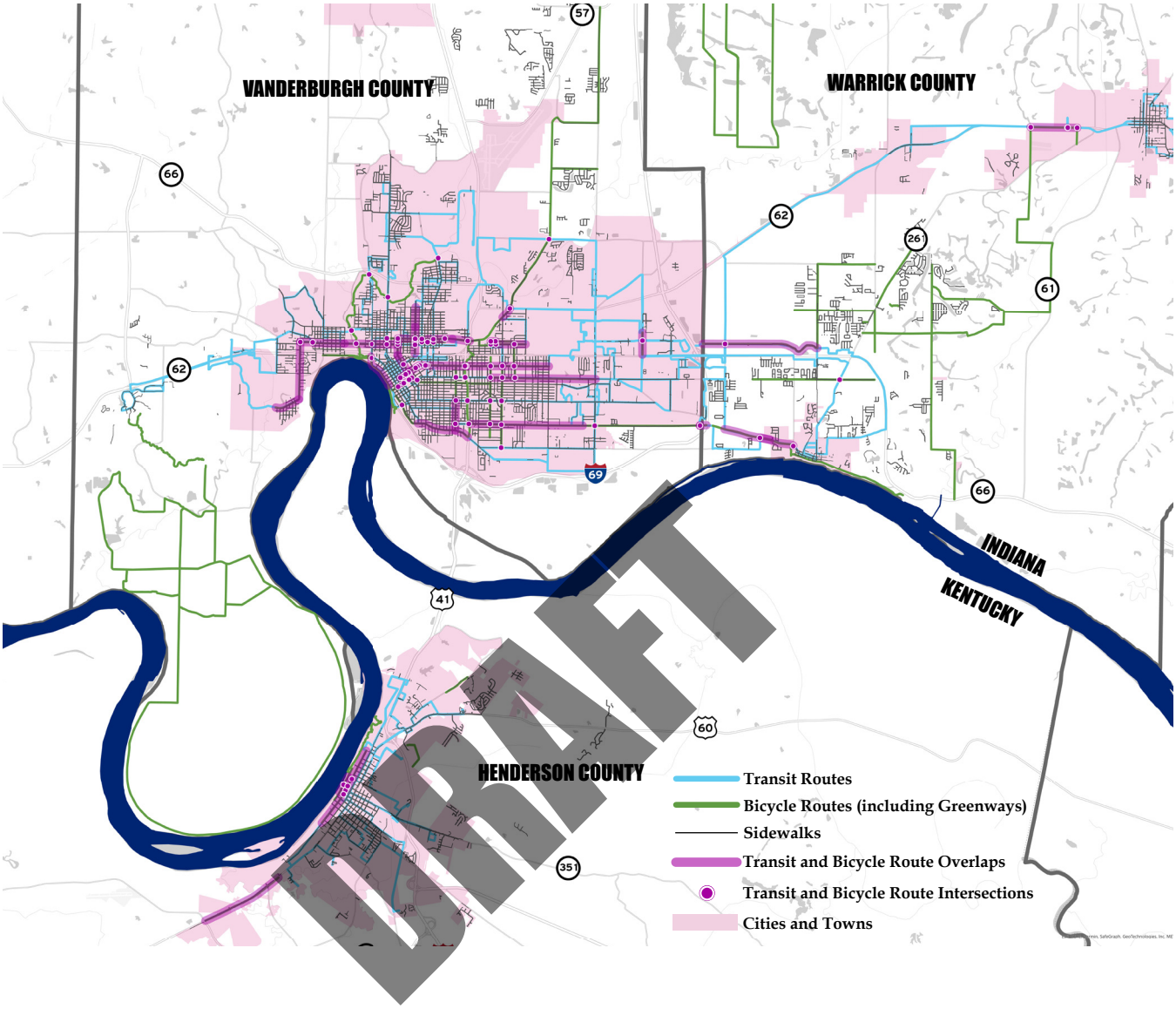
The Evansville MPO has approached mobility management in a few ways. First, the MPO is required to have a Coordinated Public Transit – Human Services Transportation Plan in order to continue to be eligible for the FTA's Section 5310: Enhanced Mobility of Seniors and Individuals with a Disability funding program. This plan focuses on the coordinated efforts of METS, HART, and the non-profit agencies that provide transportation for these populations.

In 2018 the MPO took another step toward better coordination by implementing the Regional Transit Advisory Committee (RTAC) to bring together public, private, and non-profit transportation providers on a quarterly basis to discuss regional transportation issues and opportunities. The RTAC's first priority was completing the Evansville-Henderson Regional Transportation Guide, which is a collective list of all known public, private, and non-profit transportation providers in Vanderburgh, Warrick, Henderson, Gibson, and Posey counties. The RTAC has expanded since 2018 to also include representation from bike and pedestrian groups, workforce organizations, and healthcare agencies.

The MPO's Technical Committee also has a variety of organizations that are made aware of regional coordination efforts and can provide input to help improve regional mobility. In additional to those organizations represented on the RTAC, the Technical Committee also includes neighborhood organizations, economic development agencies, public safety representatives, businesses, consultants, planners and engineers, rail companies, schools, and elected officials.

The Evansville MPO will continue to enhance mobility options and improve coordination between all modes of transportation. Access to medical appointments and work are the primary focus areas currently. Moving forward, the MPO will work with local agencies to improve access by promoting existing mobility options and providing additional opportunities.

Figure 2.18: Bicycle, Pedestrian, Transit, and On-Demand Transportation Connectivity



Network Connectivity

The strength of a region's mobility network is dependent upon how well existing networks are connected. A strong mobility network has bike and pedestrian facilities with easy access to bus stops. It's also important that bike and pedestrian facilities and bus routes all connect to major commercial centers, medical facilities, and high-density residential areas. Connections across city and county boundaries help connect the entire region. By mapping all alternative transportation networks on a single map, the areas with the greatest need for improved access can be seen.

Figure 2.18 shows the areas with access to multiple forms or transportation, including the bicycle network, pedestrian network, transit routes, and on-demand transportation options. It also highlights the areas with the greatest need.

EV Infrastructure

As electric vehicles become more mainstream across the country, it is important for the Evansville region to ensure that it is prepared for this shift in transportation. Everyone should be able to take advantage of the benefits that an electric vehicle provides. For that reason, it is important that electric vehicle charging stations are available from both public and private entities and that the power grid can handle at home charging. Understanding the types and availability of electric vehicles and charging stations will help people determine if a fully electric vehicle or a hybrid that does not require charging would be the most beneficial.

Personal Vehicles

The electric vehicle market is evolving rapidly, with models available in a range of vehicle types, from compact cars and sedans to sport utility vehicles (SUVs) and pickup trucks. Some EVs operate solely on batteries, while others are hybrid models with both an electric motor and an internal combustion engine.

There are currently 21 chargers within the MPA. Charging types and locations are shown in Figure 2.19. Compared with national data, the charging capacity per million people is about half the national average level.

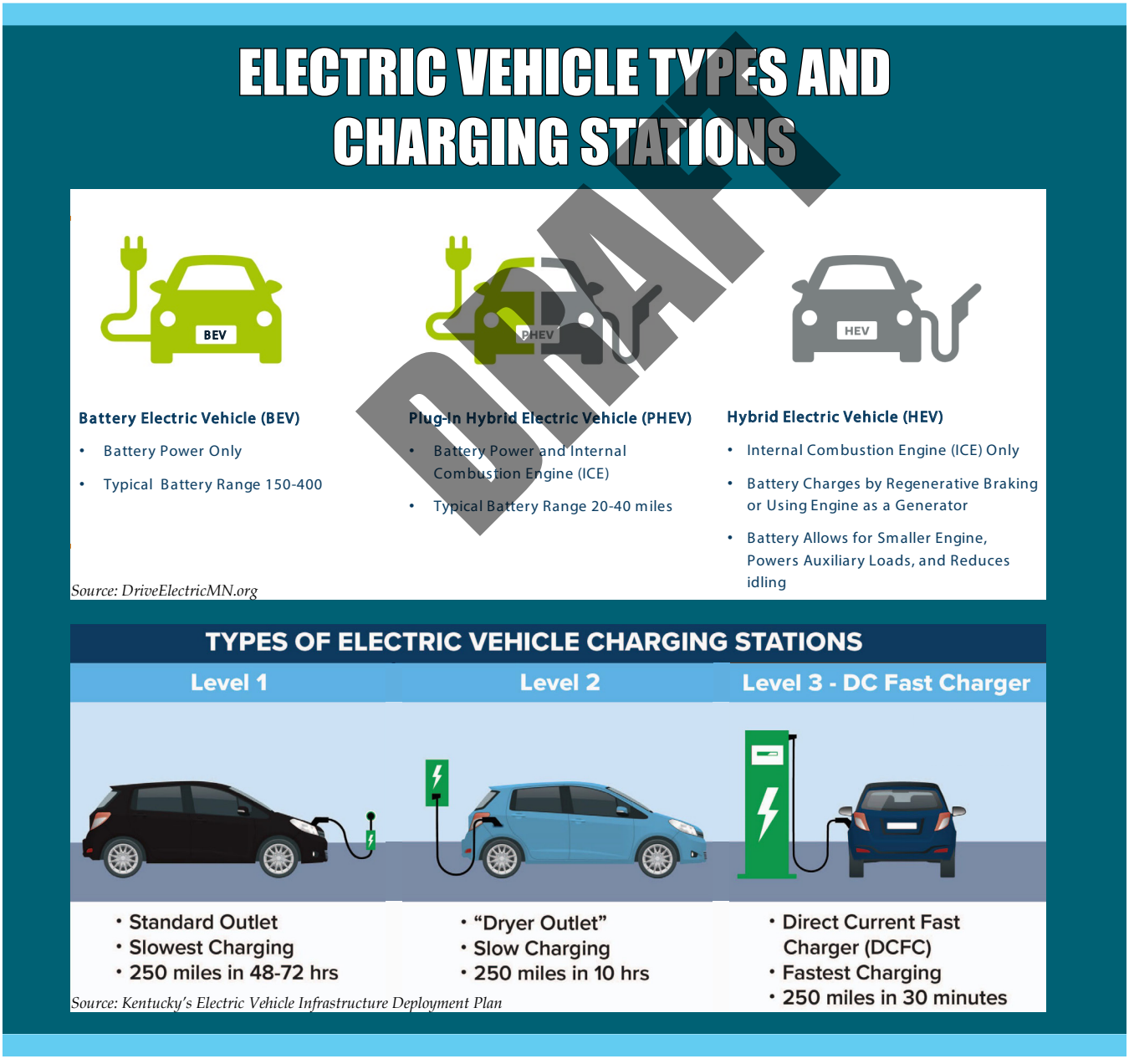
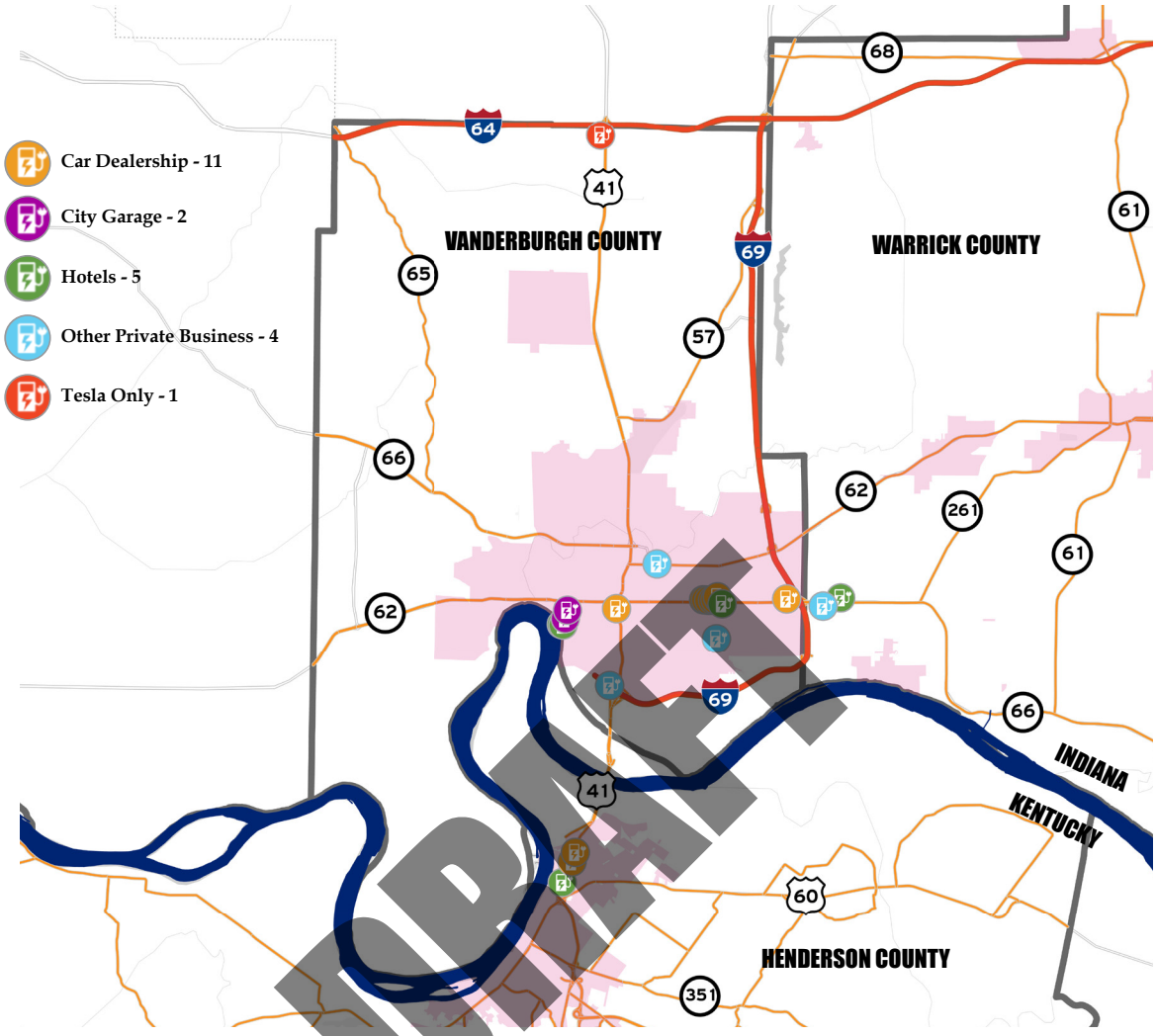


Figure 2.19: Electric Vehicle Charging Station Locations



Half of the existing chargers are located at a car dealership. While some of these chargers are open to the public with a fee, others are only open to their customers. Information for chargers not located at car dealerships is unclear on if they are open to the public or not, reducing charging reliability for travelers coming to the region.

There are currently no DCFC charging stations (known as fast charging stations) in the Evansville MPO planning area. A Tesla Supercharging Station is located in northern Vanderburgh County, but is only available to Tesla vehicles. Ideally, there should be at least one fast charging station within the urban area in the near future.

Public Transportation

Public transportation has been an early adopter of electric vehicles across the country and METS is no exception. METS started with hybrid electric buses by adding four Gillig Hybrids to their fleet in 2006. They added another in 2007, six in 2010, and two in 2012. These early hybrid models were able to get up to two more miles per gallon than diesel buses.

In 2023 and beyond, METS is looking to replace these outdated hybrids and diesel buses with new and improved hybrid electric buses. Early in 2023, they will receive five next generation hybrids with Allison eGen flex transmissions. These new hybrids can run up to ten miles per day on electric only. They also come with the latest diesel exhaust systems to lower pollution. These buses can be switched from diesel to electric throughout the route to lower noise and exhaust at specific locations and times.

Freight

Freight movement is critical to the economy, relying on all modes of transportation, including rail freight, inland waterways freight, air freight, highway freight, and intermodal/multimodal freight. The freight system is dependent on a series of interconnected facilities working in harmony with one another. A small change in reliability with any part of the system creates a ripple effect that impacts the remaining systems and causes delays in shipping and receiving that will impact the economy. Figure 2.20 shows the freight network within the region.

The U.S. Department of Transportation, Bureau of Transportation Statistics, Federal Highway Administration project that US freight activity will grow by 50% in tonnage between 2020 and 2050. As overall national freight movements across all modes are expected to increase, congestion, reliability, safety, and system preservation will continue to be of major concern for the foreseeable future, despite improvements in operational efficiencies currently planned. Figure 2.21 shows current and expected value of shipments using highways, railroads, and waterways, air and pipelines for 2017, 2019 and projected for 2050. Figure 2.22 shows current and expected tonnage of shipments using highways, railroads, and waterways, air and pipelines for 2019 and projected for 2050. Both tonnage and value for all modes are expected to increase.

Figure 2.20: Freight Network

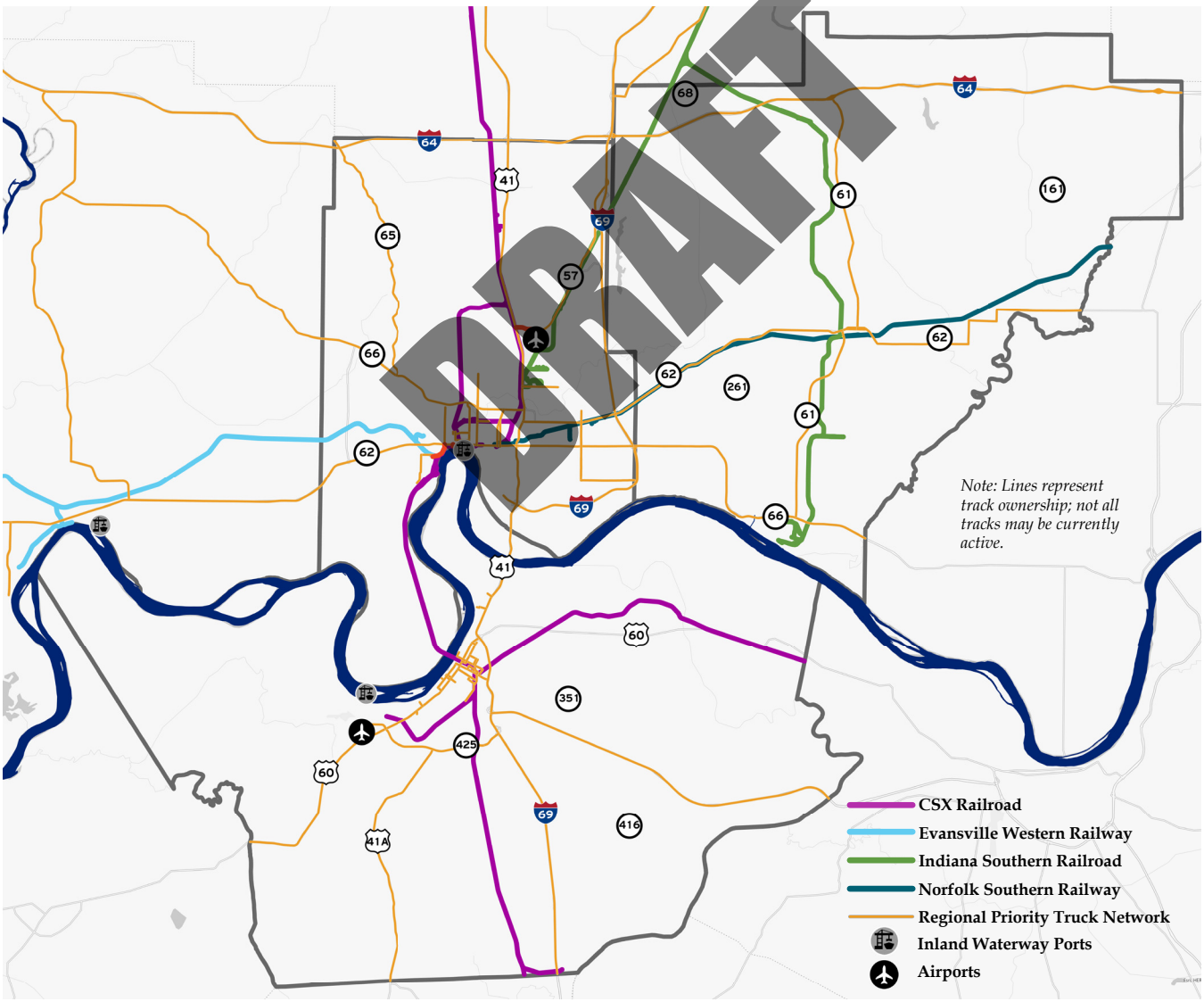


Figure 2.21: Value of Shipments

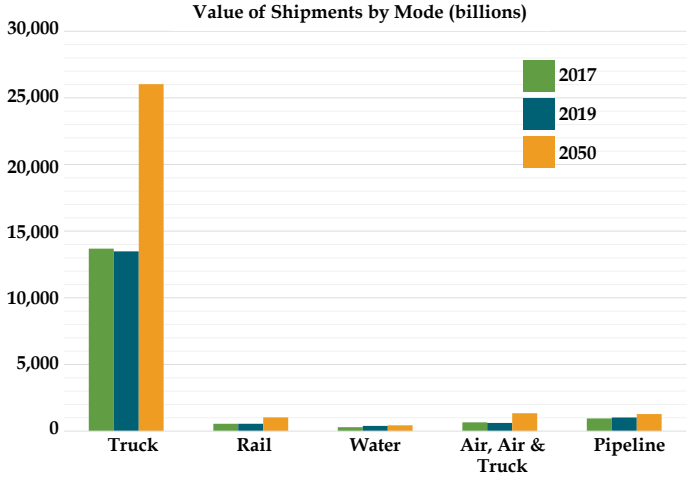
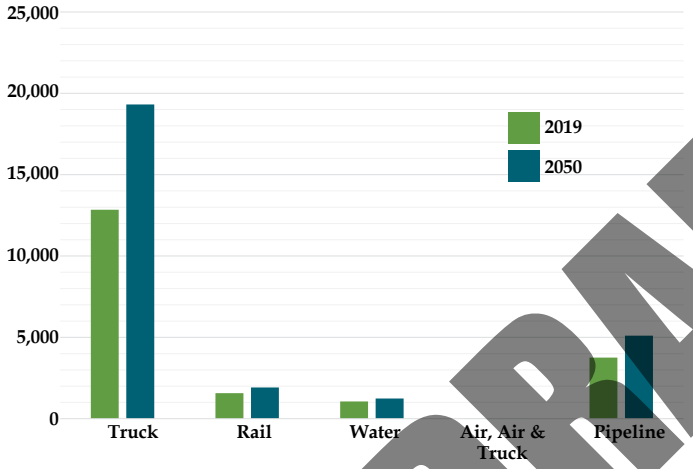


Figure 2.22: Weight of Shipments



Rail Freight

Railroads are a critical component of the transportation system for the region and compete with water and truck-based services for the movement of bulk materials. Rail lines extend from the Evansville Metropolitan Planning Area (MPA) in all directions providing needed connections to the regional and national networks. Rail lines in the MPO region carry freight only. Passenger service was discontinued in 1971.

There are five companies in operation in the MPA. Currently, CSX Transportation and Norfolk Southern Railway are the only two Class I railroads, meaning they have an operating revenue over $250 million per year. Figure 2.20 shows these rail lines by ownership.

Capacity

According to nationwide data collected in 2007, the CSX line running north-south through the MPA is nearing capacity. It has been projected that this same rail line will be over capacity by 2035. A map that's included in the Indiana 2018 State Freight Plan indicates some of the rail within the Evansville MPO region cannot accommodate 286,000 pound railcars, which is the current standard maximum car weight. This limits the efficiency and competitiveness of these rail lines.

Inland Waterways Freight

The Ohio River has historically been the main driver for growth in the region. The Ohio River is designated as a Marine Highway (M-70), which is a route for transporting cargo on water that reduces pollution and congestion on roads. Since 2009, the Department of Transportation has designated 24 Marine Highway routes and invested millions in projects supporting Marine Highway services. In addition to highlighting the role waterways play in moving freight throughout the region, designated Marine Highways receive preferential treatment for any future federal assistance from the Department of the Maritime Administration.

Several industries in the area utilize barge transportation for incoming and outgoing freight movement, and there are two public riverports that have a major impact on the flow of commodities throughout the MPA. Figure 2.20 shows Inland Waterway Ports.

Port of Indiana-Mount Vernon

Port of Indiana - Mount Vernon (POI-MV, formerly Southwind Maritime Center) lies outside of the MPA, but has a considerable freight impact in the MPO region. Port of Indiana-Mount Vernon handles more cargo than any other port in the state and is the 7th largest inland port in the United States. More than 3,700 barges, 200,000 trucks, and 45,000 railcars move through the port annually. The port serves the agriculture, energy and manufacturing sectors with the major cargoes being corn, wheat, coal, ethanol, fertilizer, limestone, pig iron, steel coils, salts, and soybean products, among others. Approximately 58% of the cargo from the last five years has been from the energy sector, 31% from the agriculture sector, and 11% from the construction sector. It is the largest public port within 153 miles from the confluence of the Ohio and Mississippi Rivers and connects the Ohio River Valley Region of the Midwest to the world with year-round access to the Gulf of Mexico and Great Lakes through the Inland Waterway System.

- 60-ton, dual-lift overhead crane
- 53,000 square foot transit shed

- 200-car rail storage capacity
- Rail service by Evansville Western with interchanges to five Class I railroads
- Highway connection to I-64 and I-69
- Foreign-Trade Zone #177
- Port complex encompasses 1,240 acres

According to the 2018 Indiana State Freight Plan, rail service is available for five class I railroads, while the nearest limited access highway is I-69 in Evansville. Other highway access improvements were recently studied as part of INDOT's Transportation Asset Management Plan. An upgraded North-South connection along SR 69 to I-64 was the best performer of options studied.

Henderson County Riverport

Henderson County Riverport (HCR) is located at milepost 808 on the Ohio River, west of the City of Henderson. Due to the elevation above sea level, it's one of the few U.S. ports able to stay in continuous operation during significant flooding periods. It is an all-commodities terminal offering full port facilities, dry and liquid fertilizer storage and handling, bulk and cargo handling, warehousing, yard storage, and intermodal transfers between barge, rail and truck.

- 125-ton electric pedestal crane
- 134-barge fleeting area
- 12,800 feet of rail track on riverfront facility
- Rail service by CSXT
- Highway access to I-69 over an adopted Critical Urban Freight Corridor
- 100–acre facility includes industrial park
- Foreign-Trade Zone

Port of Evansville

Port of Evansville is located on Evansville's southwest side. It is an intermodal facility with access for barges, trucks, and rail. Trucks have access to the port from the Lloyd Expressway from Ray Becker Parkway, which is an NHS intermodal connector.

Lock and Dam Stations

There are two lock and dam stations on the Ohio River within the MPA - the Newburgh Lock and Dam in Warrick County and the John T. Myers Lock and Dam in Posey County. Both are operated from the northern shore of the river.

Air Freight

The Evansville Regional Airport and Henderson City-County Airport are shown in Figure 2.20.

Evansville Regional Airport

The MPA is served by one regional airport. The Evansville Regional Airport (Identifier KEVV), the largest airport in the region, is located at SR 57 and US 41. The operation, which includes sites for commercial development, is overseen by the Evansville-Vanderburgh Airport Authority District. The Federal Aviation Administration (FAA) classifies the airport as a Primary - Non-hub facility. This implies that the airport will serve as a starting point or a destination rather than an in-route stopover for travelers to other destinations.

While freight shipments have always been available, freight cargo has historically played a secondary role to passenger travel. Types of cargo demand which typically occur at the airport are airline cargo, all-cargo and charter service shipments. The major airlines and commuter airlines transport airline cargo in the hold of passenger aircraft. Airline cargo typically includes small packages, express cargo (i.e. tropical fish, flowers, etc) and mail.

All-cargo carriers range from freight forwarders operating their own fleet (such as UPS and FedEx) to carriers operating on an intermittent basis. No information has been made available on the amount or value of cargo that is shipped using this facility, though within the last decade, FedEx began weekday flights of time sensitive, early delivery cargo from Memphis, TN to the FedEx distribution center located in Vanderburgh County.

According to the 2018 Indiana State Freight Plan, the Evansville Regional Airport is one of five airports in Indiana that have volumes of 100 tons or greater of air cargo, and it is considered a Foreign Trade Zone. An Air Commerce Park is also planned for development.

Henderson City-County Airport

Henderson City-County Airport has a 5,500 foot paved runway and full parallel taxiway. Don Davis Aviation is their fixed based operator. The airport is in close proximity to the Henderson Riverport and several factories. The automotive industry is the primary user of freight services at the airport. The freight gets delivered and picked up by truck.

Highway Freight

Trucks carry 65% of U.S. freight tonnage and are predicted to carry the most in 2050 as well. Freight movements by truck depend heavily on the Interstate Highway System. Trucks perform the initial pick-up and delivery for the majority of goods and commodities moved by air, rail, and water. Connector routes between freight transportation modes are a critical link to facilitate the smooth movement of freight.

Network

The MPO's Regional Priority Truck Network, shown in Figure 2.20, represents the priority routes in the MPA. This network includes the National Truck Network (NTN), National Highway System (NHS) routes or intermodal connectors not on the NTN, Critical Urban Freight Corridors not included on NTN or NHS networks and locally designated truck routes. All of these routes together have been established to improve freight movement. The MPO gives additional priority to improvements on this network during the project selection process, and monitors congestion on the more heavily traveled routes through the Congestion Management Process laid out in Appendix C.

Capacity

With the expected increases by weight and value for truck shipments, truck volumes are expected to follow that increase accordingly. Figures 2.23 and 2.24 show truck volumes for 2020 and the projected volume for 2050.

Current regional truck volumes indicate the interstates, parkways, highways and state roads are most heavily used by trucks. Hot spots occur on I-64, US 41, I-69, and the Audubon Parkway. While volumes alone do not indicate impaired freight movement, these areas are monitored through the CMP for congestion and delay. Volumes can also be used when determining where local truck routes are needed to support freight movements.

Figure 2.23: Truck Volumes - 2020

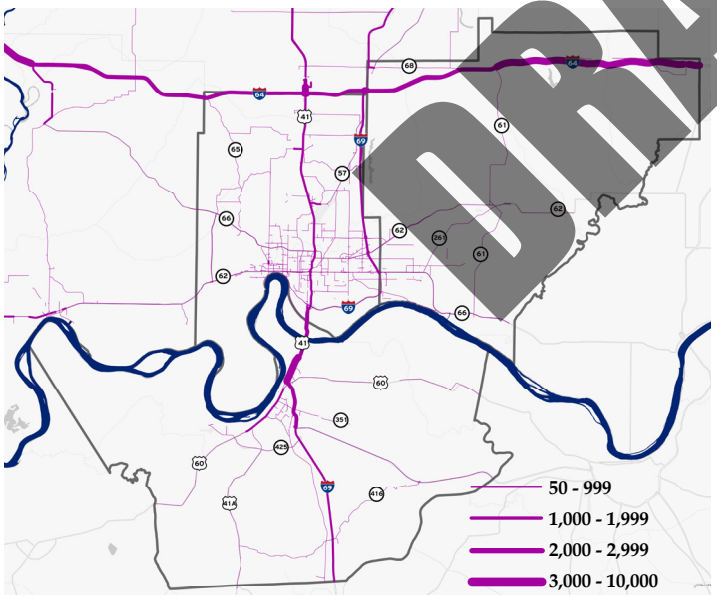


Figure 2.24: Truck Volumes - Projected 2050

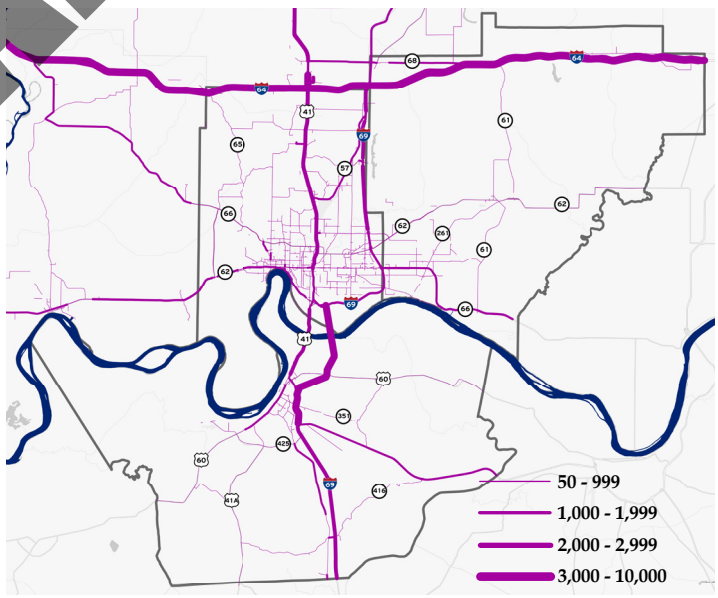
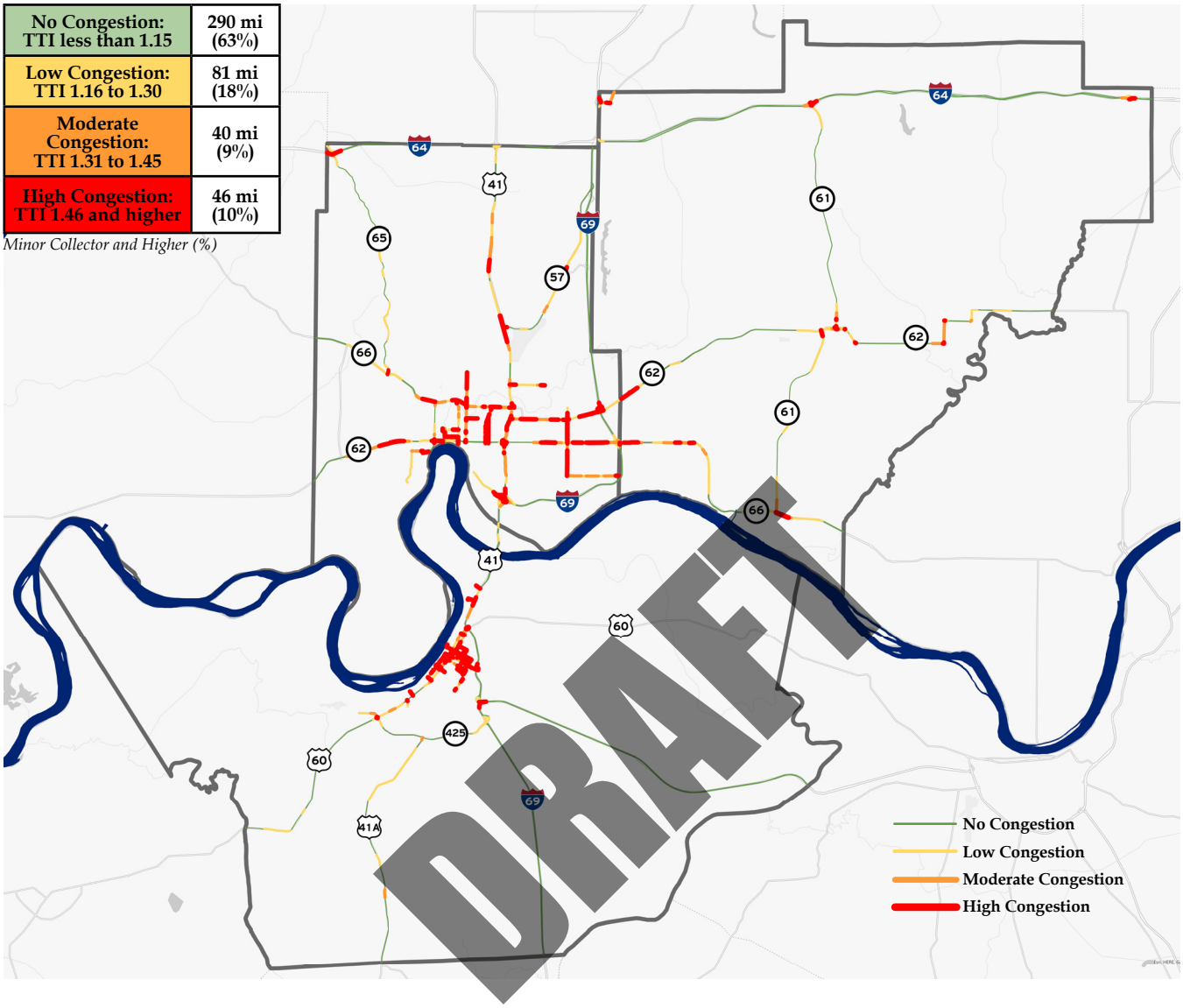


Figure 2.25: Trucks Travel Time Index

No Congestion: TTI less than 1.15	290 mi (63%)
Low Congestion: TTI 1.16 to 1.30	81 mi (18%)
Moderate Congestion: TTI 1.31 to 1.45	40 mi (9%)
High Congestion: TTI 1.46 and higher	46 mi (10%)

Minor Collector and Higher (%)



Travel Time Index (TTI) is a ratio of peak period travel time to the time required to make the same trip during free-flow traffic conditions. The TTI was calculated for trucks within the Evansville MPO planning area to classify the facilities with existing congestion using Streetlight Data. Figure 2.25 shows the level of congested roads traveled in the region on the Evansville Priority Truck Routes for trucks only. The data can be utilized as a preliminary tool in identifying congested locations for trucks within the MPO area. Based on the analysis of travel time index for trucks, 19% of the roadway segments that are part of the Evansville MPO Priority Truck Route (86 miles of roadway) are currently experiencing either moderate or heavy congestion (a TTI of 1.31 or more). The map and table shows the travel time index for trucks only based on 2021 data.

Pipeline

Pipelines are generally the lowest cost, highest volume and least flexible mode of goods transport. Natural gas and petroleum products are the primary commodities delivered by a local pipeline distribution network.

Intermodal/Multimodal Freight

Multimodal and intermodal shipments move by a combination of two or more transportation modes. Intermodal shipments can be containerized and the actual cargo is never touched but can easily be moved from rail to truck or barge to rail, etc. To facilitate intermodal movements, the FHWA issued guidelines in April of 1995 for Identifying National Highway System Connectors to major intermodal

terminals. This document indicated that NHS connectors must be public roads leading to major intermodal terminals and that those roads must have a critical bearing on the efficient operation of that facility. Intermodal terminals were defined as facilities which provide for the transfer of freight or passengers from one mode to another.

There are five intermodal connectors within the MPA that are recognized by FHWA. These connectors are listed in Table 2.9. All are in Indiana and located near the largest intermodal facilities in the region.

Table 2.9: Intermodal Connectors

Facility	Type	Connector No.	Connector Description	Connector Length	Facility ID
Evansville Regional Airport	Airport	1	From U.S. 41: east 0.8 mi on SH 57 to Bussing Dr at the airport entrance	0.8	IN2A
Ohio River Intermodal Terminal Grouping	Port Terminal	1	From SH 62: southwesterly 0.9 mi on Ray Becker Parkway to S Barker Ave	0.9	IN9P
Ohio River Intermodal Terminal Grouping	Port Terminal	2	From SH 62: south 0.1 mi on Wabash Ave to port	0.1	IN9P
Ohio River Intermodal Terminal Grouping	Port Terminal	3	From SH 62: south 0.1 mi on Fulton Ave to port	0.1	IN9P
Port of Indiana	Port Terminal	1	Served by an existing NHS route	0	IN15P
Southwinds Maritime Centre	Port Terminal	1	From SH 69 bypass: west 1.3 mi on SH 62 to Southwind Port Rd at the port entrance	1.3	IN1P

Suitability Mapping and Analysis

To assist in project selection, the Evansville MPO developed a suitability map that shows "hotspots" where roadway improvements would benefit in consideration of several factors. These factors include:

- 100-Year Floodplain Data
- crash intersections (locations with fatalities or incapacitating injuries)
- crash segments (locations with fatalities or incapacitating injuries)
- pavement conditions (Pavement Condition Index of 55 or less)
- Environmental Justice (Tier 1 EJ Areas (Exceeds 6-7 EJ Population Thresholds))

Figure 2.26 shows these factors layered together.

A standard 1-mile grid was layered on top of factors on the map. Each grid was assigned a number based on how many factors were present within it. The numbers assigned to each grid were:

- 0: if no factors were present with the grid
- 1: if one factor was present within the grid
- 2: if two factors were present within the grid
- 3: if three factors were present within the grid
- 4: if four factors were present within the grid
- 5: if five factors were present within the grid

A heat map was generated after each grid was assigned a number. Grids that were determined to be a 5 represent the areas that could benefit the most from infrastructure improvements because all five factors considered are present. Figure 2.27 shows the identified hotspots.

This suitability map was shown to LPAs during project development discussions as a tool to help guide project recommendations.

Figure 2.26: Suitability Factors

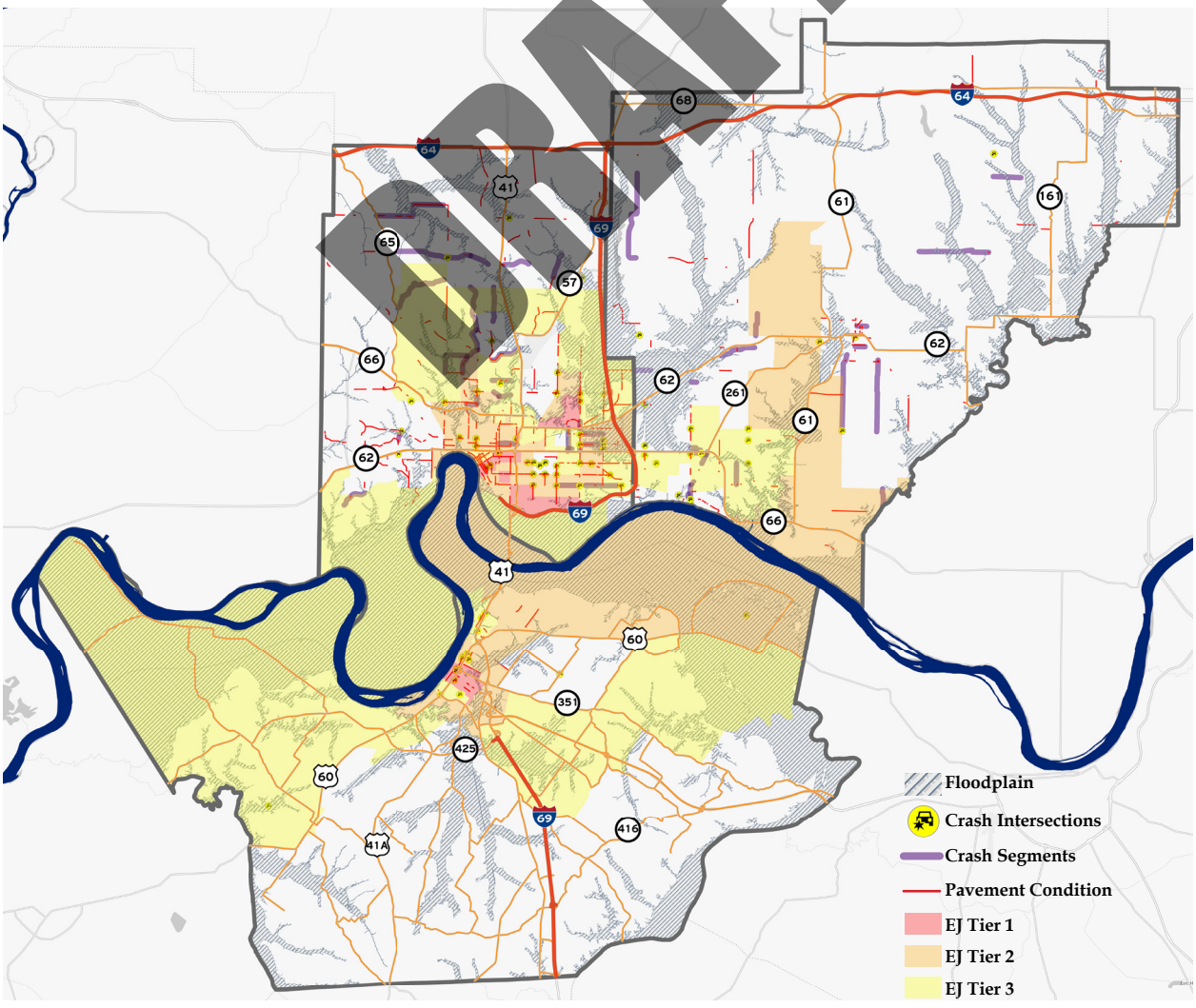
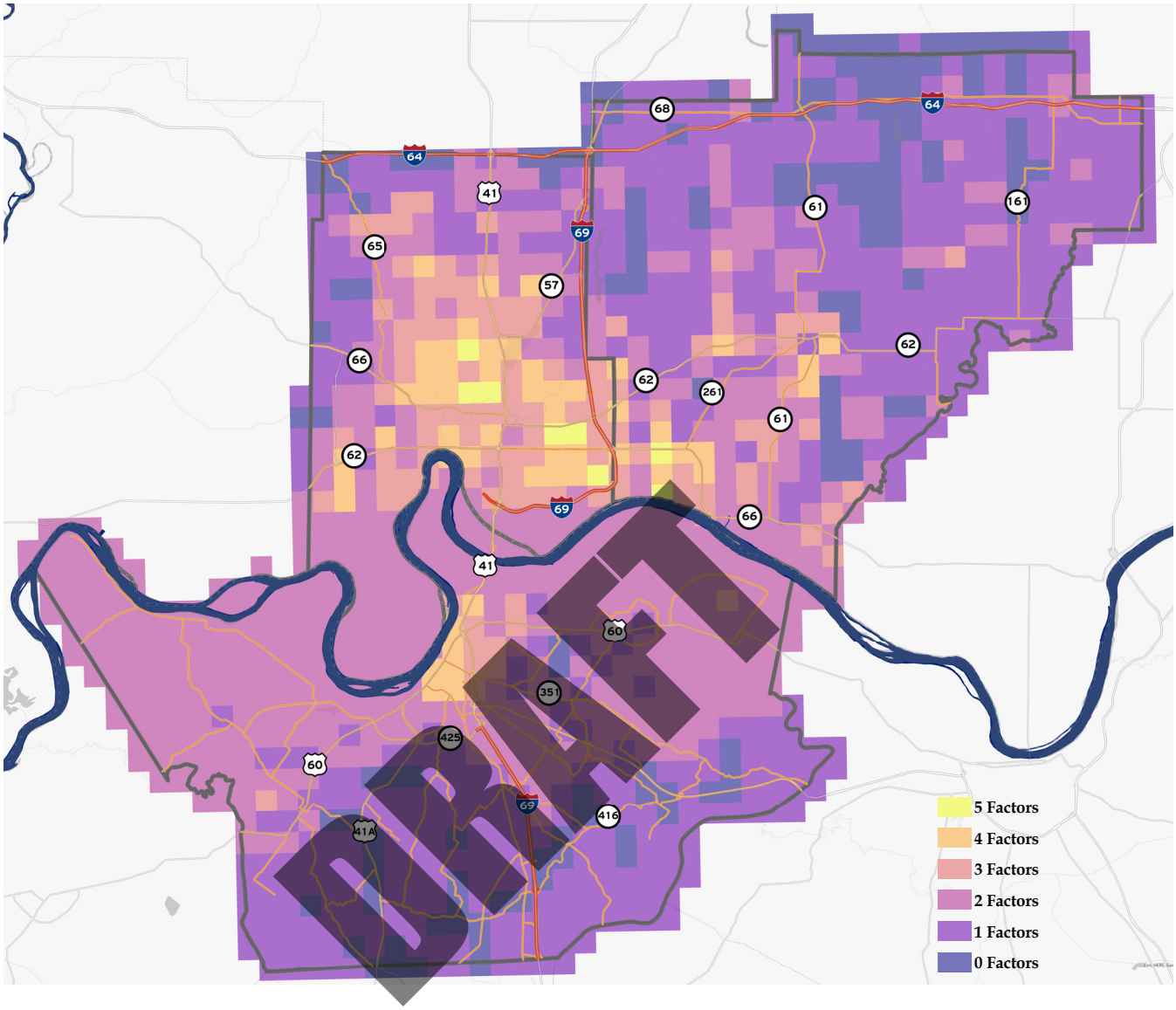


Figure 2.27: Suitability Hotspots



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03 PUBLIC ENGAGEMENT & AGENCY COORDINATION

The continuing, comprehensive and cooperative 3C approach established by the FHWA in the early 1960s was designed to engage the public and stakeholders in creating a shared vision and goals for the community. Nearly sixty years later, the 3C approach is still important in allowing everyone the opportunity to participate in the decision-making process relating to transportation needs in the region.

Public participation is a critical component of the planning process and was a continued effort throughout the development of the MTP 2050. The Evansville MPO utilized multiple forms of public outreach to gather as much information as possible from a variety of stakeholders and the general public, including more virtual involvement options than before because of the COVID-19 pandemic. Table 4.1 summarizes the outreach efforts for the plan.

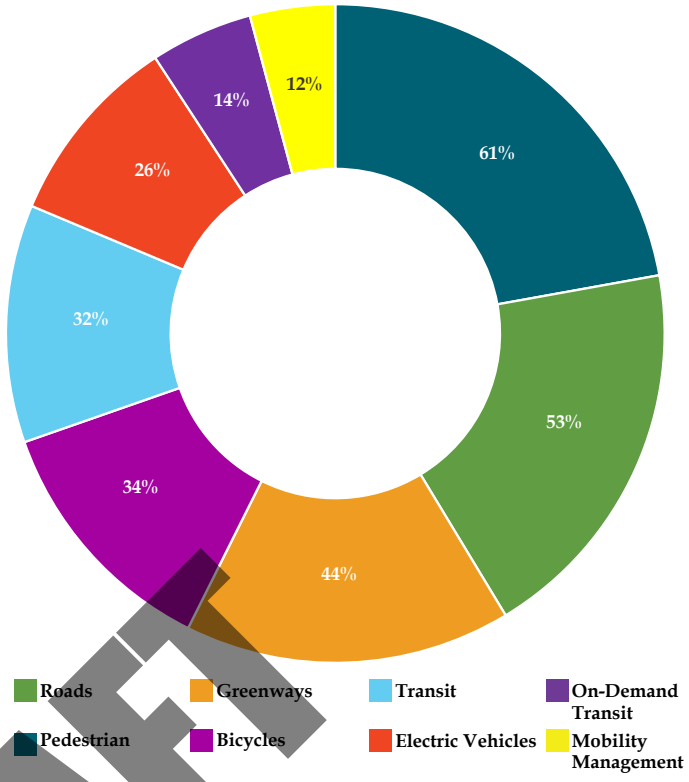
Public Open House

Public Survey

The Evansville MPO designed an online survey that allowed participants to select their top three overall transportation priorities, as well as their top priorities for roadway, bicycle, pedestrian, transit, and the creation of a mobility management/ complete trips app. The survey was available online from May 27, 2022 through June 17, 2022. A flyer detailing how to take the survey was posted at transit terminals and in city/county buildings in both English and Spanish. A paper version of the survey was also available at the Evansville MPO office.

Out of the 424 responses collected, 92% listed a personal vehicle as their most common mode of travel. However, when asked about overall priorities, 61% of respondents listed roadway improvements as their top priority. Figure 3.1 shows the breakdown of overall priorities. Because each respondent was able to select up to three priorities, these totals will not total to 100%. Additional survey results, along with outreach efforts, can be found in Appendix D.

Figure 3.1: Survey Overall Priorities



Citizen's Advisory Committee

In July 2022, the Evansville MPO assembled a Citizen's Advisory Committee (CAC) to help guide the development of the plan. The CAC is comprised of approximately 20 members representing diverse interests and backgrounds (see the Acknowledgements section at the beginning of the MTP 2050 for a full list of CAC members and their affiliations). The CAC gathered for meetings, completed online surveys, and were notified of public outreach efforts so they could participate in and help share information for public events.

The first CAC meeting was held virtually on August 23, 2022 to gather input for the plan's goals and objectives. The CAC provided the Evansville MPO with information needed to update the plan's vision statement and objectives. A mapping exercise was also conducted to begin initial conversations for potential projects.

Once a preliminary list of projects was drafted, the CAC provided comments and input online. An interactive map was developed for the CAC that showed projects, project limits, concepts, and open-to-traffic timeframes.

Table 3.1 shows a list of overall outreach efforts.

Table 3.1: Outreach Efforts

Who	What	When	Purpose
Public	Priorities Survey	May 27 - June 17, 2022	Gather the public's opinion on how to prioritize transportation modes.
CAC 1	Vision, Goals and Objectives	August 23, 2022	Develop the vision, goals, and objectives for the MTP 2050. Members also discussed roadways/areas where improvements could be made.
LPAs	Project discussions	September 2022	One-on-one meetings with LPAs to review data and discuss project needs within their jurisdiction.
CAC 2	Potentially	October - November 2022	Members identified programs, policies, and projects that could achieve goals and objectives. They then prioritized the list.
Public	Open House	February 8, 2023	Public Open House to provide citizens an opportunity to review and comment on the plan.
Public	Open House	February 8, 2023	Public Open House to provide citizens an opportunity to review and comment on the plan.
Public	Evansville MPO Technical and Policy Committee Meetings	March 9, 2023	Plan adoption.

Local Public Agencies

The Evansville MPO began meeting with the Local Public Agencies (LPAs) in September 2022 to gain an understanding of project needs in their jurisdictions. LPAs consist of cities, towns and counties within the Evansville MPO planning area. LPAs reviewed projects currently in the MTP 2045 to determine what was still an applicable need and provided additional potential projects based on trends over the past five years.

As part of these initial discussions, the Evansville MPO presented the LPAs with data that was collected as part of a mapping suitability analysis. Data showing flooding information, pavement conditions, incapacitating injuries and fatalities crash locations, and the Environmental Justice Tiers were mapped together to create a suitability map showing what areas may benefit from a potential project. More details on the mapping suitability can be found in Chapter 2.

The LPAs were also shown comments the Evansville MPO received during the first Citizen's Advisory Committee meeting. This information helped guide discussions as additional projects for potential inclusion in the MTP 2050 were considered.

State and Federal Agencies

In addition to the CAC and local agencies, the Evansville MPO sent the draft project list to state and federal agencies, as well as federally designated tribes. Table 3.2 shows a complete list of the agencies and tribes contacted.

Table 3.2: Agency Coordination and Tribal Consultation

Agency Coordination			Tribal Consultation
Angel Mounds	Indiana Department of Natural Resources-Division of Historic Preservation & Archaeology	US Army Corps of Engineers-Louisville District, Indianapolis Regulatory Office	Absentee Shawnee Tribe of Oklahoma
Blue Grass Fish and Wildlife Area	Indiana Southern Railroad	US Department of Housing & Urban Development -Chicago Region Office	Delaware Nation of Oklahoma
Conexus Indiana	John James Audubon State Park	US Fish & Wildlife Service-Bloomington Indiana Field Office	Delaware Tribe of Indians
CSX Transportation	Kentucky Department of Environmental Protection	US Fish & Wildlife Services-Frankfort Field Office	Eastern Shawnee Tribe of Oklahoma
Evansville Airport	Kentucky Division of Water	USDA Natural Resources Conservation Service	Miami Tribe of Oklahoma
Evansville Port Authority	Kentucky Heritage Council	Vanderburgh County Historian	Osage Nation
Evansville Western Railroad	National Park Service, Midwest Regional Office	Vanderburgh County Historical Society	Peoria Tribe of Indians of Oklahoma
Henderson Airport	National Park Service-Southeast Region	Vanderburgh Emergency Management Agency	Pokagon Band of Potawatomi Indians
Henderson Emergency Management Agency	Natural Resources Conservation Service	Warrick County Historian	Shawnee Tribe
Historic Southern Indiana	Norfolk Southern Railroad	Warrick Emergency Management Agency	United Keetoowah Band of Cherokee Indians
Indiana Department of Environmental Management, Southwest Regional Office	Port Authority-Henderson	Indiana Department of Transportation (INDOT)	
Indiana Department of Natural Resources-Division of Fish and Wildlife Services	Ports of Indiana-Mount Vernon	Kentucky Transportation Cabinet (KYTC)	

Draft Plan

The Draft MTP 2050 will released for a 30-day public comment on January 25, 2023 and be open through February 24, 2023. Open house meetings for providing information and collecting comments on the Plan will be held at the Evansville Central Library and the Henderson Public Library on February 8, 2023. The comment period and meetings will be advertised in the Evansville Courier & Press, Henderson Gleaner, and The Warrick County Standard. Copies of the draft MTP 2050 will be made available at the Evansville MPO office in Evansville, the Office of the City of Henderson Manager and Henderson-Henderson County Plan Commission office, and the Newburgh and Boonville town halls. The draft MTP 2050 was also available for review at select area public libraries. Comment sheets will be provided at all locations along with the draft copy to simplify the comment process. In addition, the draft MTP 2050 will be available for online review through the Evansville MPO website.

Appendix E will contain the text of comments received during the development and draft review public comment periods.

The primary goal of the transportation planning process is to develop a safe, cost-effective transportation system that ensures mobility to all persons, enhances the quality of life in the region, supports planned growth, promotes economic development, and preserves the integrity and enhances the vitality of the human and natural environment. To achieve this FHWA, FTA and their partners have developed the Performance Based Planning and Programming (PBPP) process. This process uses data to help assess the effectiveness of plans and programs in meeting state and regional performance of goals.

Performance Reporting, Monitoring, and Evaluation is a reporting requirement that includes descriptions of the performance of each national goal area. The anticipated outcomes of utilizing a performance-based planning process, including the prescribed performance measures and INDOT/KYTC/MPO target setting, is to achieve a higher level of system performance.

04 EVALUATING PERFORMANCE

Washington Ave and 2nd St - Evansville

Federally Required Performance Measures

Current federal transportation legislation requires MPOs, in collaboration with the state DOT and transit agencies, to formally establish targets for performance measures aligned with seven identified national goals:

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

PBPP and TPM

PBPP refers to the application of performance management within the federally-required regional planning and programming processes to achieve desired performance outcomes for the multimodal transportation system. PBPP is intended to ensure that transportation investment decisions are made — both in the long-term planning and medium-term programming of projects – based on their ability to meet established goals. Implementation of PBPP is done within the Transportation Performance Management (TPM) framework which includes setting targets for the performance measures identified in the federal legislation.

PBPP and TPM: Bringing It All Together

TPM HOW WE GET THERE

PBPP Framework	PBPP Element	TPM Framework	TPM Elements
Strategic Direction *(Where do we want to go?)*	Goals and Objectives Performance Measures	National Goals Measures	Goals and Objectives Performance Measures
Performance Based-Planning (Analysis) *(How are we going to get there?)*	Identify Targets and Trends Identify Strategies Develop Strategy/Investment Priorities *Results in long-range plans*	Targets Plans	Targets: Technical Approach and Business Process Strategy Identification Investment Prioritization
Performance Based-Programming *(What will it take?)*	Investment Plan Resource Allocation Program of Projects	Plans	Programming Within Program Areas Programming Across Program Areas
Implementation and Evaluation *(How did we do?)*	Reporting Monitoring Evaluation	Reports Accountability Transparency	Monitoring & Adjustment (System, Program, Project) Reporting & Communication (Internal & External)
Cross-Cutting Elements *(Apply to Entire Framework)*	Public Involvement Data Management Data Analysis		Organizational Culture External Collaboration & Coordination Data Management Data Usability & Analysis

U.S. Department of Transportation
Federal Highway Administration

10

Federal Transportation Performance Management

The national performance measures are broken down into five categories:

- Safety
- Infrastructure Condition
- System Performance
- Transit Asset Management
- Transit Safety

Federal planning regulations identify performance measures to help determine how well the regional transportation system is meeting national policy goals and the public's expectations. These measures are central to implementing a performance-based planning process that guides investment decisions. This strategic, structured approach relies on performance measurement to reach decisions that fulfill performance outcomes.

Performance measures are intended to:

- clarify the definition of the goals,
- monitor and track performance over time,
- provide a reference for target setting,
- provide a basis for supporting policy and investment decisions by comparing alternative options, and
- allow the ability to assess the effectiveness of projects and strategies.

Establishment of Targets by the MPO

For each performance measure identified in paragraph (c) of section (23 CFR 490.105 (f)(3)), except the CMAQ Traffic Congestion measures in paragraph (f)(5) of this section, and MPOs meeting the criteria under paragraph (f)(6)(iii) of this section for Total Emissions Reduction measure, the MPOs shall establish targets by either:

1. Agreeing to plan and program projects so that they contribute toward the accomplishment of the relevant State DOT target for that performance measure; or
2. Committing to a quantifiable target for that performance measure for their metropolitan planning area.

The Evansville MPO has opted to support the state DOT's (INDOT and KYTC) targets by planning and programming projects that will contribute toward the accomplishment of those targets. This proposal was originally approved by the MPO's Policy Committee on November 8, 2018 and most recently approved on November 10, 2022.

State Performance Targets

USDOT has implemented the federal PBPP requirements through a number of rulemakings released in several phases. At the conclusion of the rulemaking process, states had twelve months to establish statewide performance targets for the federal performance measures, after which MPOs had up to 180 days to establish regional performance targets. The complete set of performance management final rules can be found at fhwa.dot.gov/tpm/rule.cfm. Calculations of targets, including use of particular data sources, are specified in each final rule.

In addition to the timelines for the establishment of the performance targets by the State DOTs and MPOs, the final rules also include the associated reporting requirements. All baseline targets have been established and are presented in the following sections. Baseline performance reports required by the regulations were submitted by INDOT and KYTC are required to submit midpoint and conclusion of each performance period to FHWA. They are also required to update their goals. This information can be found on FHWA's State Performance Dashboard and Reports. Tables 4.1 through 4.4 summarize the most recent goals and most recent progress determination results available from the FHWA website from the 2020 Mid Performance Period.

Safety

- **Number of Fatalities:** The total number of persons suffering fatal injuries in a motor vehicle crash during a calendar year based on the Fatality Analysis Reporting System (FARS) database.
- **Rate of Fatalities:** The ratio of total number of fatalities to the number of vehicle miles traveled (VMT, in 100 Million VMT) in a calendar year. The state DOT provide the data source for VMT.
- **Number of Serious Injuries:** The total number of persons suffering at least one serious injury in a motor vehicle crash during a calendar year. This data source is either obtained from the State Police crash reporting system ARIES in Indiana) or the DOT (KYTC for Kentucky).
- **Rate of Serious Injuries:** The ratio of the total number of serious injuries to the number of VMT (in 100 Million VMT) in a calendar year.
- **Number of Non-motorized Fatalities and Non-motorized Serious Injuries:** The combined total number of non-motorized fatalities and serious injuries during a calendar year. The data sources for fatalities is FARS and the data source for serious injuries is again the state

Table 4.1: Safety Targets and Past Actuals

	2014-2018 Baseline	2015-2019 Target	2015-2019 Actual	2016-2020 Target	2016-2020 Actual	IN 2019-2023 Target
Indiana Highway Safety						
Number of Fatalities	833.4	889.6	846.2	907.7	862.4	894.2
Rate of Fatalities	1.030	1.087	1.038	1.100	1.064	1.088
Number of Serious Injuries	3,375.0	3,501.9	3,320.8	3,467.4	3,293.4	3348.1
Rate of Serious Injuries	4.172	4.234	4.072	4.178	4.060	4.068
Number of Non-Motorized Fatalities and Serious Injuries	380.2	393.6	384.4	405.9	377.6	399.6
Kentucky Highway Safety						
Number of Fatalities	737.4	737.0	766.6	754.0	770.4	764.0
Rate of Fatalities	1.520	1.500	1.556	1.500	1.580	1.575
Number of Serious Injuries	3,124.8	2,991.0	2,954.4	2,706.0	2,848.8	2658.0
Rate of Serious Injuries	6.454	6.070	6.000	5.400	5.832	5.519
Number of Non-Motorized Fatalities and Serious Injuries	277.2	276.0	287.2	287.0	293.8	289.0

police crash reporting system or the state DOT. Non-motorized transportation may include pedestrian, bicyclist, other cyclist or person on personal conveyance.

Baseline data are calculated using a 5-year rolling average. Table 4.1 shows the most recent Safety targets established by INDOT and KYTC.

Infrastructure Condition

The Federal Highway Administration has established performance measures for state DOTs to use in managing pavement and bridge performance on the NHS.

Pavement

The state DOTs are required to collect data for interstate and non-interstate NHS pavements that conform to the final rule (IRI, Rutting, Cracking percentage, Faulting, and Inventory), regardless of ownership, and establish 2- and 4-year targets for the following performance measures:

- Percentage of Interstate pavements in Good condition
- Percentage of Interstate pavement in Poor condition
- Percentage of non-Interstate NHS pavement in Good condition
- Percentage of non-Interstate NHS pavements in Poor condition

Table 4.2 shows the most recent Pavement performance targets established by INDOT and KYTC.

Bridge

These performance measures apply to all bridges carrying the National Highway System (NHS) including on- and off-ramps. DOTs must establish statewide 2- and 4-year targets. The condition is measured based on deck area. The classification is based on the National Bridge Inventory (NBI) condition ratings for item 58 – Deck, 59 – Superstructure, 60 – Substructure, and 62 – Culvert. The condition is determined by the lowest rating of deck, superstructure, substructure, or culvert. If the lowest rating is greater than or equal to 7, the bridge is classified as good; if it is less than or equal to 4, the classification is poor. The performance measures are:

- Percent of NHS bridges by deck area classified in Good condition
- Percenter of NHS bridges by deck area classified in Poor condition

The most recent Bridge performance targets established by INDOT and KYTC are shown in Table 4.2.

Table 4.2: Infrastructure Condition Targets and Past Actuals

	Baseline	2015-2019 Target	2015-2019 Actual	2-Year Target	4-Year Target
Indiana Highway Infrastructure Condition					
Percentage of Interstate System Classified as in Good Condition	N/A	N/A	N/A	60.0%	62.0%
Percentage of Interstate System Classified as in Poor Condition	N/A	N/A	N/A	1.0%	1.0%
Percentage of Pavements of the non-Interstate NHS in Good Condition	N/A	78.7%	44.8%	50.0%	48.0%
Percentage of Pavements of the non-Interstate NHS in Poor Condition	N/A	3.1%	0.9%	1.5%	1.5%
Percentage of NHS Bridges Classified as in Good Condition	50.0%	48.3%	48.0%	49.0%	47.5%
Percentage of NHS Bridges Classified as in Poor Condition	2.3%	2.6%	2.6%	3.0%	3.0%
Kentucky Highway Safety					
Percentage of Interstate System Classified as in Good Condition	N/A	N/A	N/A	N/A	50.0%
Percentage of Interstate System Classified as in Poor Condition	N/A	N/A	N/A	N/A	3.0%
Percentage of Pavements of the non-Interstate NHS in Good Condition	N/A	35.0%	48.9%	35.0%	35.0%
Percentage of Pavements of the non-Interstate NHS in Poor Condition	N/A	6.0%	1.4%	6.0%	6.0%
Percentage of NHS Bridges Classified as in Good Condition	34.8%	35.0%	29.7%	35.0%	35.0%
Percentage of NHS Bridges Classified as in Poor Condition	3.8%	3.7%	3.7%	3.7%	3.2%

System Performance

Level of Travel Time Reliability (LOTTR)

This is a measurement of travel time reliability on the Interstate and non-Interstate NHS. This is calculated as the ratio of the longer travel times (80th percentile) to a "normal" travel time (50th percentile), using data from FHWA's National Performance Management Research Data Set (NPMRDS) or equivalent. Data are collected in 15-minute segments during all time periods between 6 a.m. and 8 p.m. local time. The measures are the percent of person-miles traveled on the relevant portion of the NHS that are reliable. Person-miles consider all users of the NHS. DOTs must establish 2- and 4-year targets with the option to adjust 4-year targets in their mid-performance period progress report.

Table 4.3 shows the most recent Level of Travel Time Reliability performance targets established by INDOT and KYTC.

Freight Reliability

This is the measurement of truck travel time reliability on the Interstate System. The intent of the measure is to consider factors that are unique to the roadway freight industry, such as the use of the system during all hours of the day and the need to consider more extreme impacts to the system in planning for on-time arrivals. State DOTs must establish 2- and 4-year targets with the option to adjust 4-year targets in the mid-performance period progress report. Freight reliability will be assessed by the TTTR Index (Truck Travel Time Reliability Index). Reporting is divided into five periods: morning peak (6-10 a.m.), midday (10 a.m.-4 p.m.); and overnights for all days (8 p.m.-6 a.m.). The TTTR ratio is generated by dividing the 95th percentile time by the normal time (50th percentile) for each segment. The TTTR Index is generated by multiplying each segment's largest ratio of the five periods by its length, then dividing the sum of all length-weighted segments by the total length of Interstate. Needed data is available in the FHWA's National Performance Management Research Data Set (NPMRDS) or equivalent dataset.

Table 4.3 shows the most recent Truck Travel Time Reliability performance targets established by INDOT and KYTC.

Congestion

Non-Single Occupancy Vehicle (SOV) Travel and Peak Hour Excessive Delay Measures

These are the measure of non-SOV travel and annual hours of peak hour excessive delay per capita. Currently the rule applies to urbanized areas of more than 1 million people that are also in nonattainment or maintenance areas for ozone, carbon monoxide or particulate matter. Beginning in January 1, 2022, the population threshold changes to areas of more than 200,000. All States and MPOs with NHS mileage that overlaps within an applicable urbanized area must coordinate on a single, unified target and report on the measures for that area. There are no targets that affect the Evansville MPO for these performance measures at this time.

Table 4.3: System Performance Targets and Actuals

	Baseline	2015-2019 Target	2015-2019 Actual	2-Year Target	4-Year Target
Indiana State Highway Reliability					
Interstate Highway Reliable Person-Miles Traveled	93.8%	90.5%	93.7%	93.0%	93.5%
Non-Interstate NHS Reliable Person-Miles Traveled	N/A	N/A	N/A	93.0%	93.5%
Interstate Highway Truck Travel Time Reliability Index	1.23%	1.27%	1.25%	1.32%	1.30%
Kentucky State Highway Reliability					
Interstate Highway Reliable Person-Miles Traveled	95.6%	93.0%	95.3%	93.0%	93.0%
Non-Interstate NHS Reliable Person-Miles Traveled	N/A	N/A	N/A	N/A	82.5%
Interstate Highway Truck Travel Time Reliability Index	1.24%	1.25%	1.24%	1.25%	1.25%

Air Quality

On-Road Mobile Source Emissions

This measure aids in the assessment of the Congestion Mitigation and Air Quality Improvement (CMAQ) Program through measurement of total emissions reduction of on-road mobile source emissions. State DOTs whose geographic boundaries include any part of a nonattainment or maintenance area for ozone, carbon monoxide, or particulate matter will establish separate targets for each of these applicable criteria pollutants and precursors. Total emissions reduction is calculated by summing 2- and 4-year totals of emissions reductions of applicable criteria pollutant and precursor, in kilograms per day, for all projects funded with CMAQ funds.

Table 4.4 shows the most recent On-Road Mobile Source Emissions performance targets established by INDOT and KYTC.

Table 4.4: Emissions Reduction Targets

	Baseline	2-Year Target	4-Year Target
Indiana Emissions Reductions			
Cumulative Reductions- Particulate Matter (PM 2.5)	N/A	3.40	4.00
Cumulative Reductions-Particulate Matter (PM 10)	N/A	0.020	0.030
Cumulative Reductions-Nitrogen Dioxide (NOx)	N/A	690.00	725.00
Cumulative Reductions-Carbon Monoxide (CO)	N/A	330.00	520.00
Cumulative Reductions-Volatile Organic Compound (VOC)	N/A	590.00	600.00
Kentucky Emissions Reductions			
Cumulative Reductions- Particulate Matter (PM 2.5)	N/A	N/A	N/A
Cumulative Reductions-Particulate Matter (PM 10)	N/A	N/A	N/A
Cumulative Reductions-Nitrogen Dioxide (NOx)	N/A	100.00	200.00
Cumulative Reductions-Carbon Monoxide (CO)	N/A	N/A	N/A
Cumulative Reductions-Volatile Organic Compound (VOC)	N/A	100.00	200.00

Transit Agency Targets

MAP-21 required the FTA to establish a system to monitor and manage public transportation assets and safety, and develop performance measures for both. The FAST Act reaffirmed these requirements. On July 26, 2016, the FTA published the Transit Asset Management (TAM) Final Rule and on July 19, 2019, the FTA published the Public Transit Agency Safety Plan (PTASP) Final Rule.

Each public transportation agency that receives Section 5307 funding was required to develop a Transit Asset Management Plan, including TAM Targets by October 2018. TAM Targets must be updated annually and the TAM Plan must be updated every 4 years and cover a period of 4 years. The MPO assisted METS and HART in developing a Group TAM Plan in 2018 and an update in 2022. The agencies also work together annually to develop actual performance data at the end of each year and targets for the upcoming year.

Public transportation agencies were required to develop their initial PTASP, including Safety Targets by July 20, 2021. Each public transportation agency annually certifies via FTA's Certification and Assurances process that its safety plan meets the requirements of the final rule. Safety Targets are updated annually with the TAM Targets. The MPO assisted METS and HART in developing individual PTASPs. HART's was completed in December 2020 and METS' was completed in March 2021.

Transit Asset Management (TAM)

The FTA published this final rule on July 26, 2016 which defines the term "state of good repair", requires public transportation providers to develop and implement a transit asset management (TAM) plan, and establishes state of good repair standards and performance measures. The MPO worked with METS and HART to develop a group TAM Plan in September 2018, which defines the TAM Performance Measures and identifies TAM Targets. Table 4.5 shows these targets.

Public Transportation Safety Program

The Public Transportation Safety Program final rule published on August 11, 2016 established substantive and procedural rules for FTA's administration of a comprehensive safety program to improve the safety of the nation's public transportation systems. It provides the framework for FTA to monitor, oversee and enforce transit safety, based on the methods and principles of Safety Management Systems (SMS).

Table 4.5: TAM Targets and Past Actual

	2019 Target	2019 Actual	2020 Target	2020 Actual	2021 Target	2021 Actual	2022 Target
METS							
Rolling Stock (buses) - % of revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	14%	4%	28%	28%	28%	28%	16%
Rolling Stock (cutaways) - % of revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	55%	44%	32%	32%	53%	53%	58%
Equipment - % of equipment that has exceeded ULB or with a condition rating below 3.0 on FTA's (TERM) Scale	67%	67%	73%	73%	73%	73%	63%
Facilities - % of facilities with a condition rating below 3.0 on FTA's Transit Economic Requirement Model (TERM) Scale	0%	0%	0%	0%	0%	0%	0%
HART							
Rolling Stock (buses) - % of revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rolling Stock (cutaways) - % of revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	17%	13%	0%	13%	0%	0%	25%
Equipment - % of equipment that has exceeded ULB or with a condition rating below 3.0 on FTA's (TERM) Scale	33%	25%	25%	33%	33%	33%	0%
Facilities - % of facilities with a condition rating below 3.0 on FTA's Transit Economic Requirement Model (TERM) Scale	0%	0%	0%	0%	0%	0%	0%

**None of HART's buses fall under the larger "buses" category.*

The Public Transportation Agency Safety Plan (PTASP) Final Rule was published on July 19, 2018. This rule requires public transportation operators to develop safety plans that include the processes and procedures to implement SMS, as well as safety performance measures and targets. The MPO worked with METS and HART to develop a PTASP for each agency in December 2020, which defines the Safety Performance Measures and identifies Safety Targets. These targets are shown in Table 4.6.

Locally Established Performance Measures

In addition to the performance measures required by the FHWA and FTA, the Evansville MPO has developed performance measures to track progress towards attaining goals and objectives. Some of the goals and objectives developed during the MTP planning process do not have Federal performance measures that could be associated with them. This is particularly the case for objectives pertaining to improvements to the bike, pedestrian, and transit networks.

For the locally established measures, the Evansville MPO is tracking data each year to gather overall trends.

Table 4.7 identifies the performance measures that were included within the MTP 2045 and the progress made from 2019-2022 in the Evansville MPO region.

Table 4.6: PTASP Targets and Past Actual

		2019 Actual	2020 Target*	2020 Actual	2021 Target	2021 Actual**	2022 Target
METS							
Fatalities - Total number of fatalities that occurred at a transit facility or involving a transit revenue vehicle	Fixed Route	0		0	0		0
	Demand Response	0		0	0		0
Injuries - Any injury (other than a fatality) requiring immediate medical attention that occurred at a transit facility or involving a transit revenue vehicle	Fixed Route	3		0	0		0
	Demand Response	0		0	0		0
Safety Events - Any fatality, injury or other safety event (property damage, collisions, evacuations), that occurred at a transit facility or involving a transit revenue vehicle.	Fixed Route	6		2	0		0
	Demand Response	1		0	0		0
System Reliability (major failures) - Distance between major mechanical failures that limit actual vehicle movement, require a tow, or create safety issues (N/A if no major mechanical failures)	Fixed Route	43,670 miles		61,823 miles	75,000 miles		75,000 miles
	Demand Response	76,548 miles		34,773 miles	50,000 miles		50,000 miles
HART							
Fatalities - Total number of fatalities that occurred at a transit facility or involving a transit revenue vehicle	Fixed Route	0		0	0		0
	Demand Response	0		0	0		0
Injuries - Any injury (other than a fatality) requiring immediate medical attention that occurred at a transit facility or involving a transit revenue vehicle	Fixed Route	0		0	0		0
	Demand Response	0		0	0		0
Safety Events - Any fatality, injury or other safety event (property damage, collisions, evacuations), that occurred at a transit facility or involving a transit revenue vehicle.	Fixed Route	0		0	0		0
	Demand Response	0		0	0		0
System Reliability (major failures) - Distance between major mechanical failures that limit actual vehicle movement, require a tow, or create safety issues (N/A if no major mechanical failures)	Fixed Route	N/A		N/A	50,000 miles		75,000 miles
	Demand Response	N/A		N/A	50,000 miles		50,000 miles

**2020 Targets were not yet required. Target setting was required starting in CY 2021.*
***2021 Actual data will be available in CY 2023*

Table 4.7: Locally Established Performance Measures from the MTP 2045

		Actual				Trend
	Performance Measures:	2019	2020	2021	2022	
Quality of Life and Health	# of on-street bicycle miles	120	124	130	132	
	# of greenway/shared use path miles	29	33	33	34	
	# of sidewalk miles on arterials and collectors	453			475	
	# of people within 1/4 mile of a transit route	136,577	138,053	DNA*	DNA*	
	Travel Time Index (TTI)	1.166	1.165	1.155	DNA*	
	Volume-to-Capacity Ratio (V/C)	0.357				
Economic Vitality	# of people within 1 mile of an on-street bicycle facility	152,109	152,191	DNA*	DNA*	
	# of people within 1/2 mile of a greenway/shared use path	56,281	58,981	DNA*	DNA*	
	# of people within 1/4 mile of a sidewalk on arterials and collectors	147,572	150,435	DNA*	DNA*	
	# of jobs within 1/4 mile of a transit route	111,113	DNA*	DNA*	DNA*	
	# of road projects using State or Federal funds within Block Group(s) having a population density of at least 1,000 people per square mile	4	2	6	3	
Environment	# of projects that include green infrastructure components	0	0	2	0	

Data Not Available

Positive Trend

Stable

Not enough data to determine trend

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Goals, Objectives and Performance Measures define the long-term end to which planning activities will be directed, the planning activities that will lead to that end, and the tools to help measure progress. In addition to the performance measures required by the FHWA and FTA, the MPO has developed performance measures to track progress towards attaining goals and objectives. Some of the goals and objectives developed by the MPO do not have Federal performance measures that can be associated with them. This is particularly the case for objectives pertaining to improvements to the bike, pedestrian, and transit networks.

05 GOALS, OBJECTIVES & PERFORMANCE MEASURES

METS Downtown Terminal - Evansville

The goals included in the last MTP have been reviewed and updated based on the latest FHWA and state guidance as well as the most current planning practices and technology. These goals were also developed in collaboration with the Citizen's Advisory Committee. Table 5.1 defines goals, objectives, performance measures, and targets, while Figure 5.1 shows how they relate with one another. Table 5.2 shows the MTP 2050 goals, objectives and performance measures. The table indicates which performance measures are federally required.

Table 5.1: Definitions

Goals:	general guidelines that explain what we want to achieve as a region. They are usually long-term, large-scale, and represent a broad vision.
Objectives:	define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific, measurable, and outline the "who, what, when, where, and how" of reaching the goals. Each goal may have multiple objectives.
Performance Measures:	are used to measure progress toward each goal and objective over time. The FHWA and FTA require some performance measures to be tracked annually. Some of the goals and objectives developed during the planning process do not have federal performance measures associated with them, particularly objectives pertaining to bicycle, pedestrian and transit networks. Because of this, the Evansville MPO has developed additional performance measures to track progress towards attaining goals and objectives.
Targets:	are established at the beginning of each year for certain performance measures. A target is a specific number or percent that the region should try to attain by the end of the given year. At the end of each year, the targets will show the progress toward a given goal and objective for that year. See Chapter 4 for more details on targets and performance measures.

Figure 5.1: Relationship Between Goals, Objectives, Performance Measures and Targets

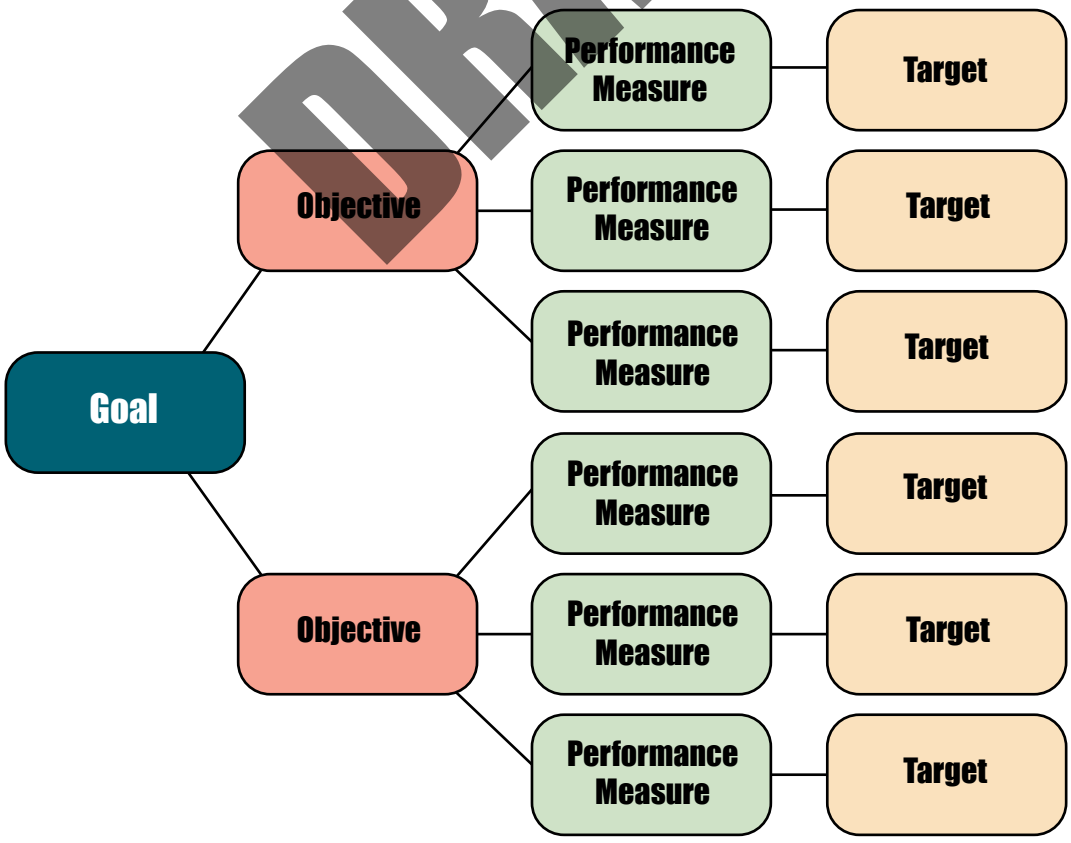


Table 5.2: MTP 2050 Goal, Objectives and Performance Measures

QUALITY OF LIFE & HEALTH		
Goal: Provide a variety of transportation options for all residents to improve connectivity and enhance quality of life, community health and transportation equity.		
1	**Objective:** Increase the availability of bicycle and ADA-accessible pedestrian facilities to provide better connections between residential areas, workplaces, health care, schools, shopping, parks/recreational facilities, services and other transportation networks.	
2	**Objective:** Increase the viability of transit by providing more options and connections between residential areas, workplaces, health care, schools, shopping, parks/recreational facilities, services and other transportation networks.	
3	**Objective:** Create a dependable transportation network to minimize impacts of unexpected delays and provide consistent travel times for all modes.	
Performance Measures:		**Federal:**
	# of on-street bicycle miles	
	# of greenway/shared use path miles	
	# of sidewalk miles on arterials and collectors	
	# of people within 1/4 mile of a transit route	
	% of person-miles traveled on interstate system that are reliable	✔
	% of person-miles traveled on non-interstate NHS system that are reliable	✔
ECONOMIC VITALITY		
Goal: Increase the economic vitality of the region to support mobility options, employment access and freight movement efficiency.		
1	**Objective:** Increase the availability of bicycle and ADA-accessible pedestrian facilities to improve job access for residents and serve as an economic catalyst to promote redevelopment.	
2	**Objective:** Expand transit options and increase efficiencies to improve access to jobs and places of business in and between all three counties.	
3	**Objective:** Create a consistent and dependable transportation network to ensure the on-time delivery of goods and services.	
4	**Objective:** Prioritize transportation projects that support redevelopment and compact growth to reduce the cost of providing transportation options and utilizing the transportation network.	
Performance Measures:		**Federal:**
	# of people within 1 mile of an on-street bicycle facility	
	# of people within 1/2 mile of a greenway/shared use path	
	# of people within 1/4 mile of a sidewalk on arterials and collectors	
	# of jobs within 1/4 mile of a transit route	
	Truck Travel Time Reliability Index (TTTR)	✔

Table 5.2: MTP 2050 Goal, Objectives and Performance Measures (Cont.)

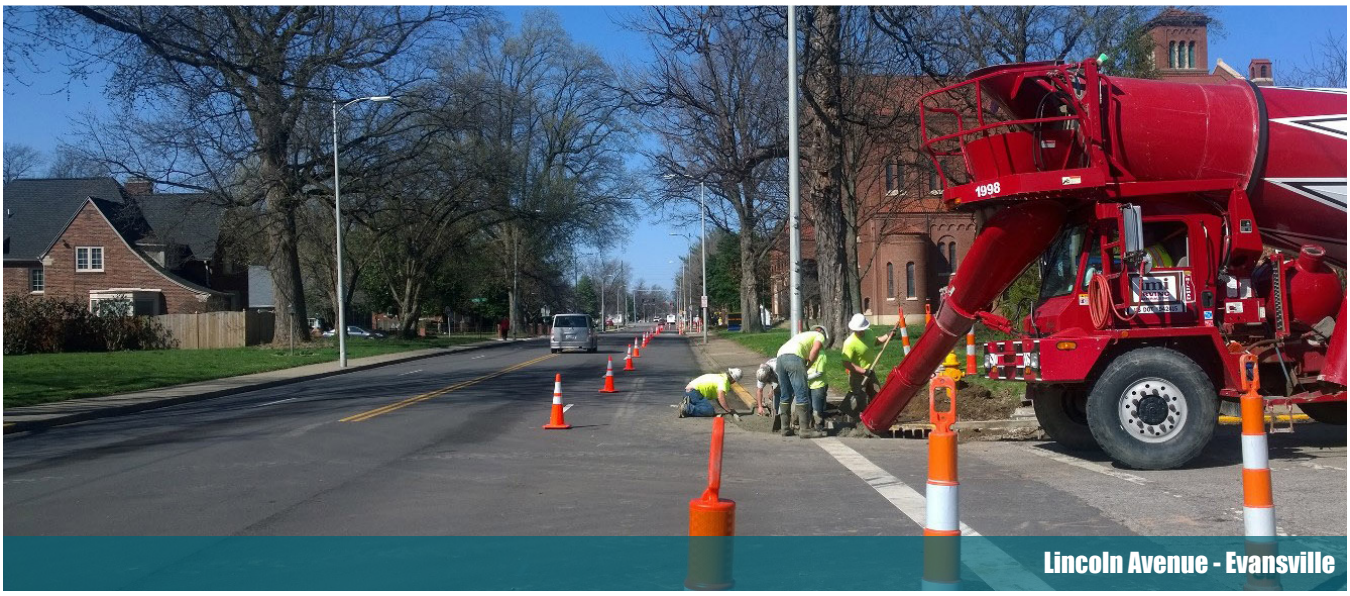
ENVIRONMENT		
Goal: Develop a transportation system that minimizes environmental impacts and preserves or enhances natural resources, air quality and water quality.		
1	**Objective:** Incorporate sustainability and resiliency into the planning process by prioritizing projects that reduce emissions.	
2	**Objective:** Prioritize projects that incorporate design elements to reduce and mitigate environmental impacts on the transportation network.	
Performance Measures:		**Federal:**
	Cumulative Reductions- Particulate Matter (PM 2.5)	✔
	Cumulative Reductions-Particulate Matter (PM 10)	✔
	Cumulative Reductions-Nitrogen Dioxide (NOx)	✔
	Cumulative Reductions-Carbon Monoxide (CO)	✔
	Cumulative Reductions-Volatile Organic Compound (VOC)	✔
SAFETY & SECURITY		
Goal: Improve the safety and security of the transportation system for all users.		
1	**Objective:** Prioritize projects that reduce serious injuries and fatalities to ensure safe and secure transportation networks for all users.	
2	**Objective:** Maintain and monitor transportation infrastructure conditions to preserve regional transportation networks.	
3	**Objective:** Maintain a state of good repair for transit and paratransit vehicles and facilities to ensure a safe and secure transit system.	
	Number of fatalities	✔
	Fatality rate per 100 million VMT	✔
	Number of serious injuries	✔
	Serious injury rate per 100 million VMT	✔
	Number of non-motorized fatalities and serious injuries	✔
	% of pavement on the interstate system in good condition	✔
	% of pavement on the interstate system in poor condition	✔
	% of pavement on the non-interstate NHS system in good condition	✔
	% of pavement on the non-interstate NHS system in poor condition	✔
	% of NHS system bridge deck area in good condition	✔
	% of NHS system bridge deck area in poor condition	✔
	% of revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	✔
	% of non-revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	✔
	% of facilities with a condition rating below 3.0 on FTA's Transit Economic Requirements Model (TERM) Scale	✔

The MTP 2050 project selection is the result of an extensive planning process that included several levels of analysis and coordination with multiple agencies and committees. Projects were selected based on public input, review of the MTP 2045 and other locally developed plans, existing conditions and trends, LPA conversations and needs, and a review by the CAC. The Evansville MPO also coordinated with local, state, and federal agencies and tribes during the development of the MTP. Chapter 3 contains a complete list of agencies and tribes that were consulted throughout the planning process. Figure 6.1 outlines the planning process.

Implementing these recommendations will help the region achieve the goals, objectives, and performance targets set forth in the MTP 2050. It is emphasized that the MTP is a dynamic document, one that will undergo future updates to reflect changing conditions and needs in the region.

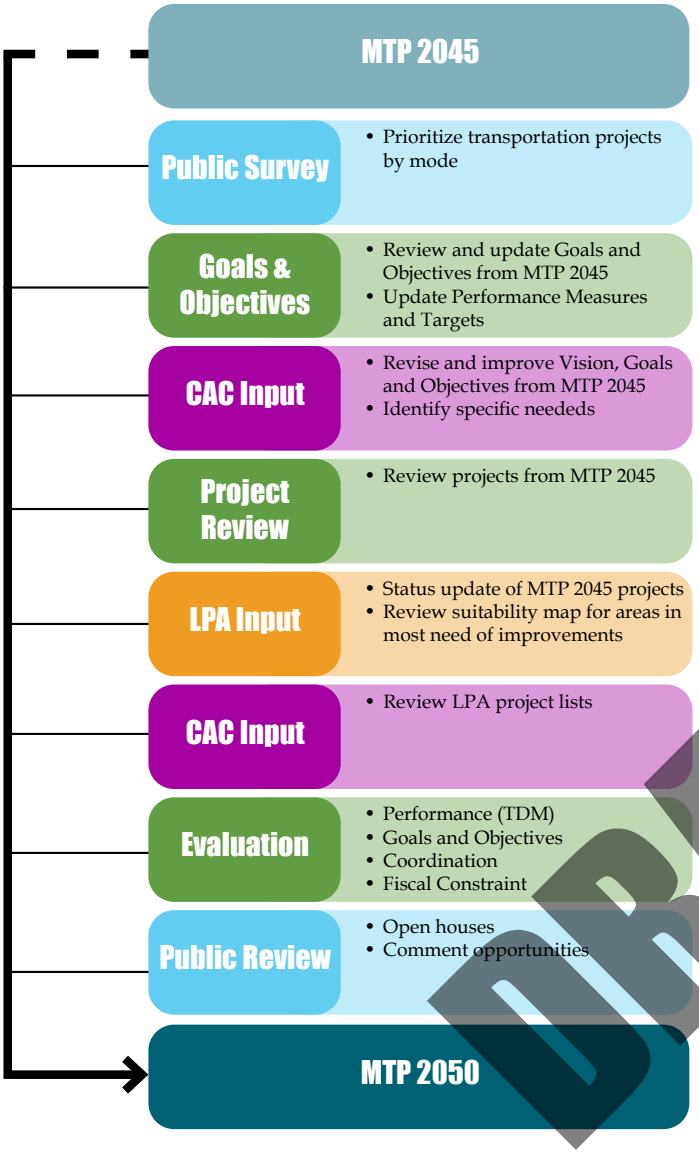
Recommendations are divided into five categories: Roadways, Illustrative Needs, Public Transportation, Bicycle and Pedestrian, and Freight. Roadway recommendations are grouped by the "open to traffic date" of 2030, 2040, or 2050, according to the anticipated funding available. Recommendations for other modes are not project-specific and do not have years associated with them.

06 RECOMMENDATIONS



Lincoln Avenue - Evansville

Figure 6.1: MTP Planning Process



Mobility

Mobility is the opportunity for everyone, no matter their income or ability, to move around their community by any mode of transportation. Transportation options are continuously evolving, providing people with additional choices in how they move around. These innovations and changes in travel patterns are constantly shifting how regions plan for efficient and high-quality transportation options.

It is the primary goal of the Evansville MPO to ensure that mobility for all is the primary consideration for transportation planning efforts. Policies and partnerships play a key role in ensuring a diverse range of transportation modes are available and accessible by all users. For this reason, the MTP 2050 recommended project lists for 2030, 2040, and 2050 take into consideration all modes. The MPO's Complete Streets Policy supports these efforts by prioritizing projects that include designs that take into consideration all modes of transportation, including pedestrians, wheelchairs, bicycles, and buses.

Roadway Recommendations

The MTP 2050 fiscally-reasonable roadway recommendations will improve the existing and future network by upgrading or adding new roadways and incorporating bicycle, pedestrian, and transit accommodations. Most projects included in the MTP 2050 are reconstruction projects to existing roadways; however, some new terrain projects were identified. The project tables include a project concept based on the best planning level information available at the time. It is important to note that the MTP process does not include project level analysis and/or details. Each project purpose and need will be fully assessed through the NEPA process after the responsible agency selects the project for implementation. The MTP projects to be completed by 2030 that are in the FY 2024-2028 TIP listing or included in a local or state capital improvement program are considered actively under development, and as such, the project scope will be more defined. The cost estimates for those active projects reflect construction costs as provided by the project sponsor in the associated document. For all other projects, an estimate cost or cost range is provided given the project scope and construction year are conceptual in nature at this time.

Figure 6.2 shows project locations with the ID# that corresponds with the project tables, shown in Tables 6.1 through 6.3. Figures 6.3 through 6.12 illustrate potential street configurations for the proposed projects.

The listed projects are intended to reduce existing and projected transportation system deficiencies and support increased mode choice in the Evansville MPO Planning Area. However, it is understood that all future deficiencies cannot be precisely or accurately modeled or predicted. Therefore, the Evansville MPO will continually monitor the transportation network to identify short-term improvements. Appendix F provides more details on how the transportation network and assets are monitored. Many of these improvements will be eligible for federal funds, such as Surface Transportation Block Grant, Congestion Mitigation and Air Quality, Highway Safety Improvement Program, Transportation Alternatives, or railroad funds. The Evansville MPO will evaluate short term improvements for federal funding through the Call for Projects process, Transportation Improvement Program (TIP) and MTP update processes.

Figure 6.2: MTP 2050 Projects

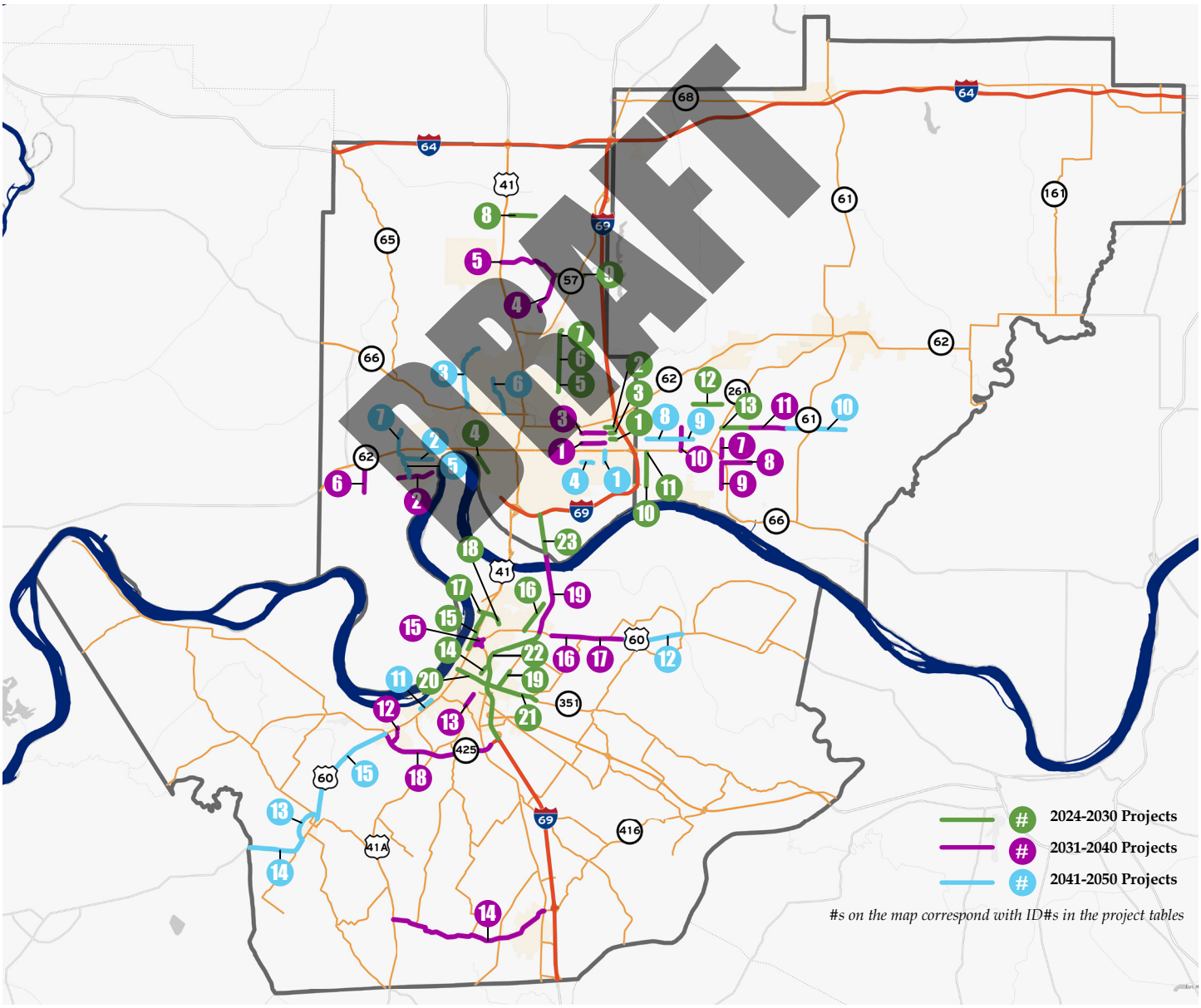


Table 6.1: 2024-2030 Project List

2024-2030						
ID#	Road	Limits	Concept	Length (mi)	Non Exempt	Est. Cost Range (mil)
City of Evansville						
30-1	Columbia St	Hirschland Rd to Cross Pointe Blvd	New Road (2 or 3 lanes)	0.2	x	N/A*
30-2	Oak Grove Rd	Burkhardt Rd to Cross Pointe Blvd	Widen from 2 to 5 lanes	0.4	x	N/A*
30-3	Vogel Rd	E of Hirschland to Cross Pointe Blvd	New Road (3 lanes)	0.3	x	N/A*
30-4	Third St	Court St to Parrett St	Reconstruct	0.8		$20.7
Vanderburgh County						
30-5	Oak Hill Rd	Lynch Rd to St George Rd	Widen from 2 to 3 lanes	1.0		$8.0
30-6	Oak Hill Rd	St George Rd to Eastwood Dr	Widen from 2 to 3 lanes	0.7		N/A
30-7	Oak Hill Rd	Eastwood Dr to Millersburg Rd	Widen from 2 to 3 lanes	1.0		$8.1
30-8	Baseline Rd	Husky Way to Old State Rd	Widen from 2 to 3 lanes	1.1		$5.3
30-9	Boonville-New Harmony Rd	Petersburg Rd to Green River Rd	Reconstruct	1.3		$8.3
Warrick County						
30-10	Epworth Rd	SR 662 to Lincoln Ave	Widen from 2 to 3 lanes	1.1		$7.0
30-11	Epworth Rd	Lincoln Ave to S of SR 66	Widen from 2 to 5 lanes	0.4	x	$5.0
30-12	Telephone Rd	Bell Rd to Fuquay Rd	Widen from 2 to 3 lanes	1.2		$7.4
30-13	Oak Grove Rd	SR 261 to Anderson Rd	Widen from 2 to 3 lanes	1.3		$6.0
City of Henderson						
30-14	Van Wyk Rd	5th Street to I-69 Exit	Reconstruct	0.4		$1.4
30-15	North Elm St	Watson Ln to 12th St	Reconstruct	1.8		$5.8
30-16	Wathen Ln	US 60 to City Limit	Reconstruct	1.4		$4.1
KYTC						
30-17	Watson Ln	Sunset Lane to Stonegate	Reconstruct	0.5		$2.8
30-18	Watson Ln	Stonegate to Green River Rd	Reconstruct	0.5		$2.0
30-19	KY 1539/Zion-Larue Rd	KY 351 to Kimsey Ln	Reconstruct	0.9		$3.0
30-20	KY 351/2nd St/ Zion Rd	Elm St to Denise Dr	Reconstruct	2.8		$7.5
30-21	KY 351/Zion Rd	E of Adams Ln to Bishop Ln	Reconstruct	1.0		$3.0
INDOT/KYTC						
30-22	I-69 ORX (Section 1)	KY 425 to US 60	New (4 lane)/Reconstruct	6.2	x	$195.0
30-23	I-69 ORX (Section 3)	State Line to I-69 (IN)	New (4 lane)/Reconstruct	1.7	x	$242.1

Project List includes regionally significant and federally-funded transportation projects in the MPO Planning Area (MPA). Agencies may have plans for road and bridge preservation and maintenance, intersection improvements, and other non-regionally significant projects, but these project types are not included in this plan.

* These infrastructure projects will be designed and constructed as part of development plans submitted by the developers of the properties. As such, the costs are not factored into the fiscal constraint determination.

New Road - Construction of new roadway on new terrain
Widen - Increase number of lanes and/or add a center turn lane
Reconstruct - Rebuild to a new condition with improved design criteria

Table 6.2: 2031-2040 Project List

2031-2040						
ID#	Road	Limits	Concept	Length (mi)	Non Exempt	Est. Cost Range (mil)
City of Evansville						
40-1	Virginia St	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	1.0		$7.2 - $8.8
40-2	Broadway Ave	City Limits to Barker Ave	Reconstruct	1.5		$13.3 - $14.6
40-3	Vogel Rd	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	1.0		$7.2 - $8.8
Vanderburgh County						
40-4	Petersburg Rd	Boonville New Harmony Rd to Kansas Rd	Reconstruct	1.7		$11.3 - $13.9
40-5	Boonville-New Harmony Rd	US 41 to Petersburg Rd	Reconstruct	2.6		$17.4 - $23.2
40-6	Schutte Rd	SR 62/Lloyd Expy to Broadway Ave	Reconstruct	1.3		$9.1 - $11.2
Warrick County						
40-7	Casey Rd	Vann Rd to SR 66	Widen from 2 to 3 lanes	0.8		$4.0 - $5.3
40-8	Lincoln Ave	SR 66 to Anderson Rd	Widen from 2 to 3 lanes	1.1		$8.2 - $9.2
40-9	Lenn Rd	Lincoln Ave to Sharon Rd	Widen from 2 to 3 lanes	1.1		$8.2 - $9.6
40-10	Libbert Rd	SR 66 to Oak Grove Rd	Widen from 2 to 3 lanes	1.0		$7.0- $9.3
40-11	Oak Grove Rd	Anderson Rd to Wethers Rd	Widen from 2 to 3 lanes	1.6		$15 - $20
City of Henderson						
40-12	Old Corydon Rd	US 60 to SR 425	Reconstruct	0.9		$2.8 - $3.7
40-13	Atkinson St	KY 136 to KY 812/Clay St	Reconstruct	0.6		$5.5 - $7.4
KYTC						
40-14	KY 416	US 41 A to US 41	Reconstruct	7.4		$55.4 - $73.9
40-15	US 41/US 60 Interchange	Interchange Modification	Reconstruct			$20.0 - $26.7
40-16	US 60	Morris Dr to KY 2183/Holloway-Rucker Rd	Reconstruct	1.3		$5.5 - $7.3
40-17	US 60	KY 2183/Holloway-Rucker Rd to KY 1078/Baskett Ln	Reconstruct	1.7		$4.3 - $5.7
40-18	KY 425/ Henderson Bypass	US 60 to I-69	Widen from 2 to 4 lanes	5.1		$29.0 - $38.7
INDOT/KYTC						
40-19	I-69 ORX (Section 2)	US 60 to State Line	New (4 lane)	3.5	x	$706.9

Project List includes regionally significant and federally-funded transportation projects in the MPO Planning Area (MPA). Agencies may have plans for road and bridge preservation and maintenance, intersection improvements, and other non-regionally significant projects, but these project types are not included in this plan.

New Road - Construction of new roadway on new terrain
Widen - Increase number of lanes and/or add a center turn lane
Reconstruct - Rebuild to a new condition with improved design criteria

Table 6.3: 2041-2050 Project List

2041-2050						
ID#	Road	Limits	Concept	Length (mi)	Non Exempt	Est. Cost Range (mil)
City of Evansville						
50-1	Burkhardt Rd	Lincoln Ave to Lloyd Expy	Widen from 2 to 5 lanes	0.5	x	$8.7 - $10.7
50-2	Claremont Ave	Red Bank Rd to Barker Ave	Reconstruct	1.3		$11.4 - $16.2
50-3	Kratzville Rd	Diamond Ave to Darmstadt Rd	Reconstruct	2.8		$5.2 - $5.7
50-4	Lincoln Ave	Green River Rd to Newburgh Rd	Widen from 2 to 3 lanes	0.5		$5.2 - $5.7
50-5	Red Bank Rd	Broadway Ave to SR 62/Lloyd Expy	Reconstruct	1.4		$14.6 - $16.0
50-6	Stringtown Rd	Diamond Ave to Mill Rd	Reconstruct	1.6		$12.0 - $13.3
Vanderburgh County						
50-7	Red Bank Rd	N of SR 62/Lloyd Expy to Upper Mt Vernon Rd	Reconstruct	0.9		$8.2 - $10.2
Warrick County						
50-8	Vann Rd	Epworth to Libbert Rd	New Road	1.5	x	$12.0 - $19.4
50-9	Vann Rd	Libbert Rd to Bell Rd	Widen from 2 to 3 lanes	0.5		$2.8 - $4.5
50-10	Roeder Rd	Wethers Rd to Yankeetown Rd	Widen from 2 to 3 lanes	2.5		$6.9 - $11.2
City of Henderson						
50-11	S Main St	Drury Ln to Yeaman Ave	Reconstruct	0.6		$1.9 - $3.1
KYTC						
50-12	US 60	KY 1078/Baskett Ln to the Green River	Reconstruct	2.6		$39.0 - $63.4
50-13	City of Corydon Bypass	US 60 to US 60	New Road	1.7		$30.66 - $49.8
50-14	US 60	Waverly, KY to Corydon, KY	Reconstruct	2.5		$20.0 - $32.5
50-15	US 60	Corydon, KY to KY 425/Henderson Bypass	Reconstruct	5.1		$24.2 - $39.3

Project List includes regionally significant and federally-funded transportation projects in the MPO Planning Area (MPA). Agencies may have plans for road and bridge preservation and maintenance, intersection improvements, and other non-regionally significant projects, but these project types are not included in this plan.

New Road - Construction of new roadway on new terrain
Widen - Increase number of lanes and/or add a center turn lane
Reconstruct - Rebuild to a new condition with improved design criteria

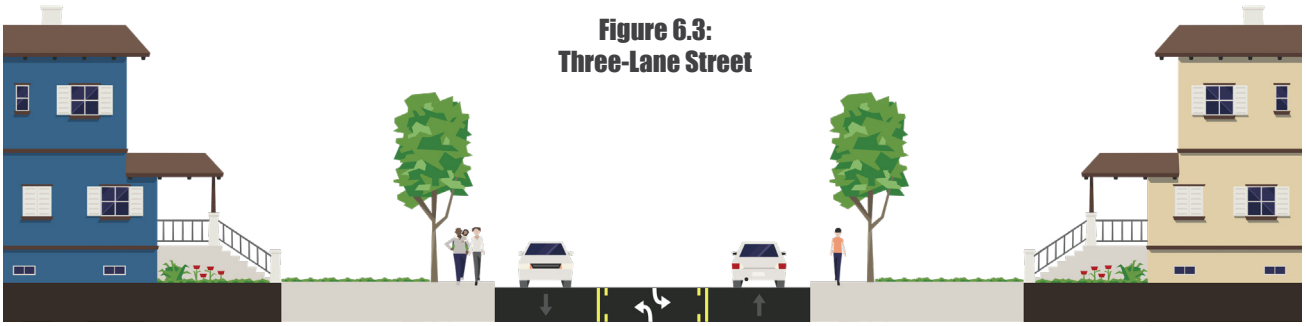


Figure 6.3:
Three-Lane Street

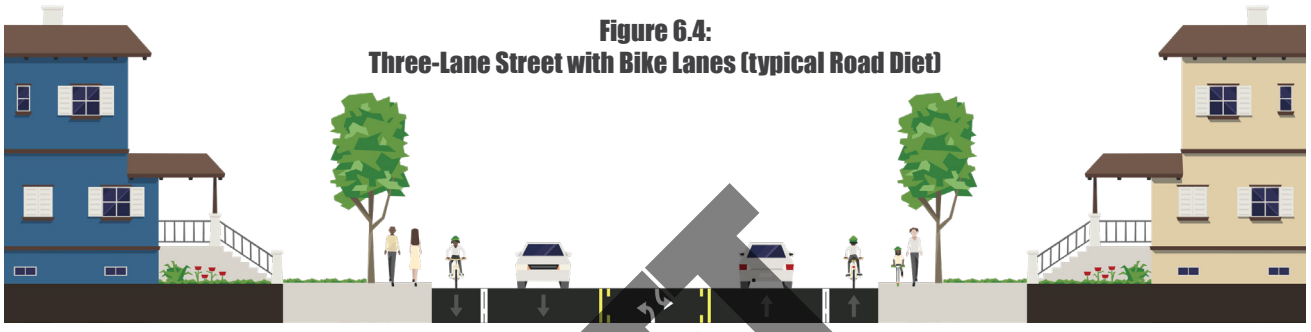


Figure 6.4:
Three-Lane Street with Bike Lanes (typical Road Diet)

Figure 6.5:
Three-Lane Street with Sidepaths

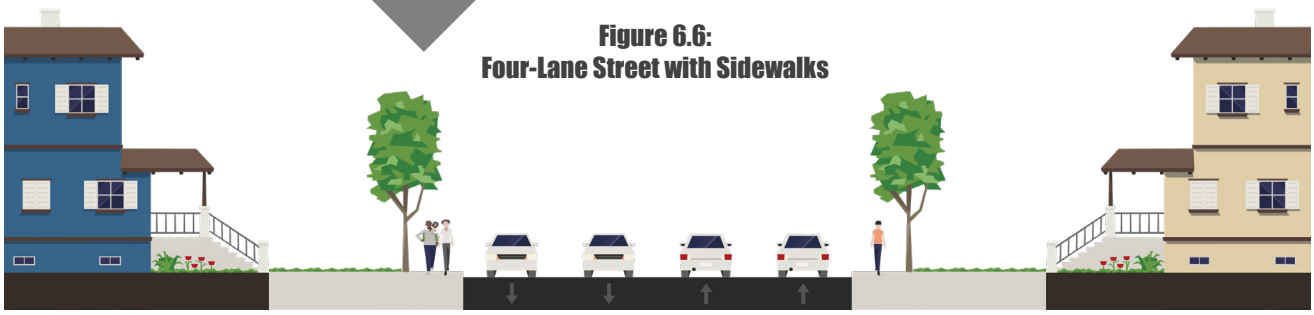


Figure 6.6:
Four-Lane Street with Sidewalks

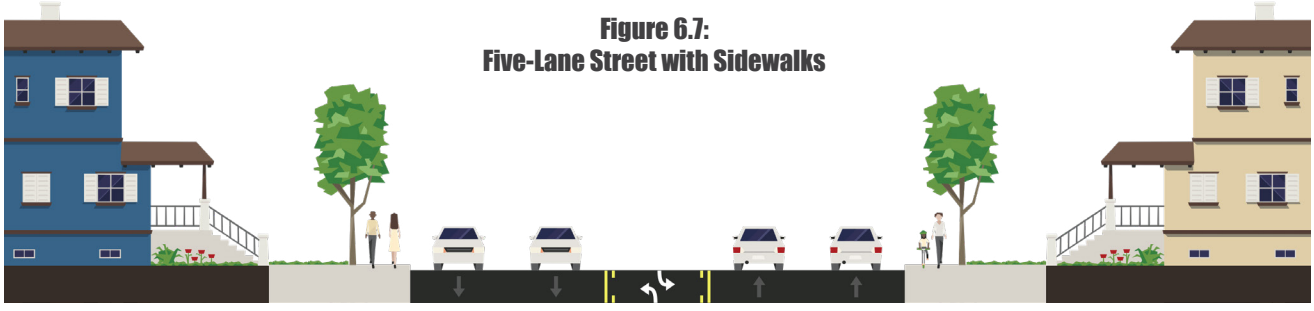


Figure 6.7:
Five-Lane Street with Sidewalks

Figure 6.8:
Two-Lane Street with Parking and Sidewalks

Figure 6.9:
Two-Lane Street with Sidewalks - Rural

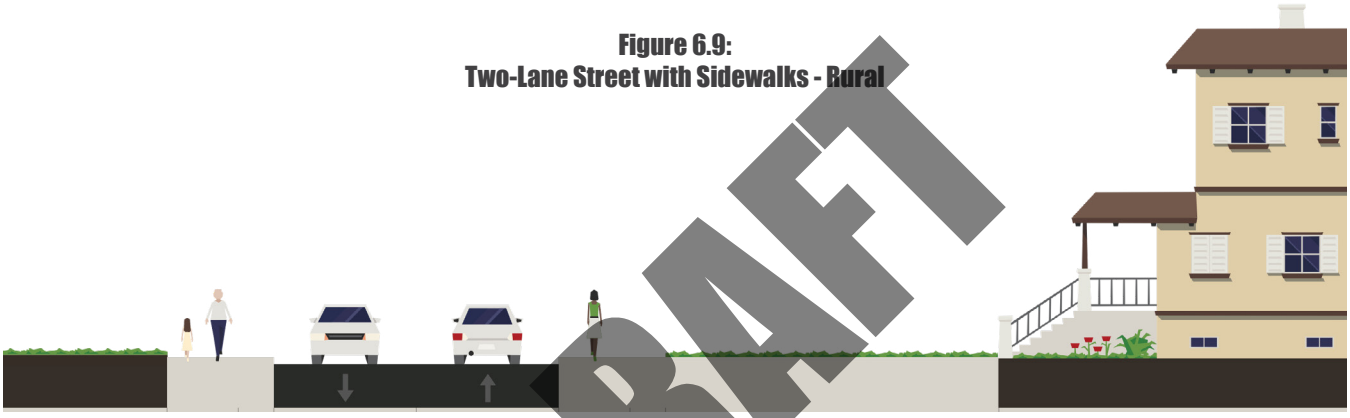


Figure 6.10:
Two-Lane Highway

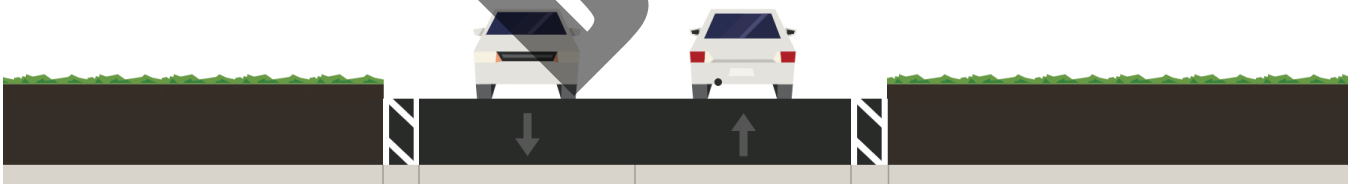


Figure 6.11:
Four-Lane Highway

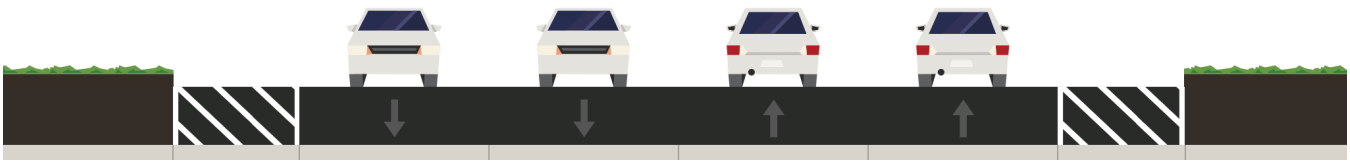


Figure 6.12:
Four-Lane Interstate

Illustrative Needs Project List

Beyond the fiscally constrained projects, the plan development process identified unmet transportation needs in the MPA. Table 6.4 lists the projects that were included in the original unconstrained project lists evaluated for the MTP 2050. Due to financial constraints, these projects could not be included in the constrained project list. Should additional funding become available during the timeframe of the MTP 2050, these projects may be reconsidered for inclusion in the constrained project list.

Table 6.4: Illustrative Needs Project List

Illustrative Needs			
ID#	Road	Limits	Concept
City of Evansville			
IL-1	Lynch Rd	Extension from US 41 to Diamond Ave	New Road (4 lanes)
IL-2	Sycamore St	Riverside Dr to Main St	Reconstruct
IL-3	Garvin St	Riverside Dr to Walnut St	Reconstruct
IL-4	Governor St	Riverside Dr to Walnut St	Reconstruct
IL-5	Theater Dr	Green River Rd to Morgan Ave	Widen from 2 to 3 lanes
IL-6	Burkhardt Rd	Lincoln Ave to Newburgh Rd	Widen from 2 to 3 lanes
IL-7	Lynch Rd	Extension from US 41 to Diamond Ave	New Road (4 lanes)
Vanderburgh County			
IL-8	Baseline Rd	SR 65/Big Cynthiana Rd to Warrick County Line	Reconstruct
IL-9	Boonville New Harmony Rd	SR 57 to Warrick County Line	Reconstruct
IL-10	Saint Joseph Ave	at Meier Rd	Realignment
IL-11	SR 57	Extension - US 41 to SR 65	New Road
IL-12	University Parkway	Extension from SR 66/Diamond Av to Interstate 64	New Road
Warrick County			
IL-13	Baseline Rd	Vanderburgh County Line to SR 61	Reconstruct
IL-14	Boonville New Harmony Rd	Vanderburgh County Line to SR 61	Reconstruct
City of Henderson			
IL-15	Watson Ln	Green River Road to US 60	Reconstruct
KYTC			
None			
Various			
IL-16	US 41 Bridge	Bicycle/Pedestrian Bridge	Repurpose

Public Transportation Recommendations

The MTP 2050 Goals and Objectives listed in Chapter 5 include several transit specific objectives. These objectives continue the key themes from regional public transportation plans that have been developed over the last several years. More information on transit plans can be found in Chapter 2.

Each of the public transportation plans also have several specific recommendations. The recommendations listed in Table 6.5 are some of the key recommendations listed in those plans and/or were discussed during the development of the MTP by the public, Citizen's Advisory Committee, METS, HART, and/or area non-profits.

Bicycle and Pedestrian Recommendations

Local bicycle and pedestrian plans all have a similar goal of increasing connectivity within the region. There are several bicycle and pedestrian related goals and objectives listed in Chapter 5 that once implemented, would provide better connections. Another common theme among these plans include increasing the network mileage that will provide access to more residents. In addition to bicycle and pedestrian specific plans, Vanderburgh and Warrick County include trailway project recommendations in their Capital Improvement Programs. More information on bicycle and pedestrian plans can be found in Chapter 2.

Local bicycle and pedestrian plans have specific recommendations and should be referenced by LPAs when implementing roadway projects. Many bicycle and pedestrian projects can be incorporated into roadway reconstruction projects to reduce the costs of adding them later. Recommendations from these plans were also brought up in the public survey and Citizen's Advisory Committee during the MTP 2050 development. The MTP 2050 bicycle and pedestrian recommendations are listed in Table 6.6.

Table 6.5: Transit Recommendations

T-1	Replace transit vehicles that are beyond their useful life in age or mileage as funding becomes available.
T-2	Rehabilitate and/or replace equipment and facilities in poor condition.
T-3	Provide funding for buses and vans to agencies that provide transportation for seniors and/or individuals with disabilities, focusing first on the needs of non-profit organizations, then on the METS and HART paratransit services.
T-4	Provide operating funds to non-profits that initiate innovative transportation for seniors and/or individuals with disabilities.
T-5	Provide funding to METS and HART to improve accessibility to the fixed route system, including accessible bus shelters and sidewalks.
T-6	Develop regional transit connections, especially between Evansville and Henderson. Consider creating Express Routes between Evansville and Henderson and Evansville and Newburgh.
T-7	Expand transit service areas and hours to provide access to more residents.
T-8	Evaluate transit corridors for opportunities to increase frequency and ridership.
T-9	Continue to expand the use of technology, such as the DoubleMap bus tracking used by METS, to improve ease of use of the transit system.
T-10	Incorporate fixed bus routes, stops, and shelters when developing road projects.
T-11	Expand transit opportunities by adding other public transportation options, such as on-demand microtransit.
T-12	Continue to expand regional mobility options through new and innovative approaches, such as universal mobility, a mobility management network, mobility on demand, and mobility as a service options.

Table 6.6: Bicycle and Pedestrian Recommendations

BP-1	Support communities within the Evansville region with the adoption of local Complete Streets Policies, separate from the regional Policy adopted by the Evansville MPO in 2012.
BP-2	Coordinate transportation planning with land use planning to encourage new developments that are walkable and bikable.
BP-3	Expand the greenway network.
BP-4	Better connect the bicycle and pedestrian network with bus systems.
BP-5	Continue to update bicycle and pedestrian plans to have projects ready when funding is available.
BP-6	Increase the amount of Upgrade Bikeshare stations throughout the region.
BP-7	Prioritize pedestrian safety at intersections, especially where greenways cross roads and a high number of pedestrians are expected.
BP-8	Support bicycle and pedestrian connections across county and state lines.

Freight Recommendations

Freight related goals and objectives discussed in Chapter 5 were formulated with the help of the Citizen's Advisory Committee (CAC) which included representatives from the local freight industry and economic development leaders. Freight stakeholders were also given an opportunity to comment on the proposed projects. Increasing economic vitality is seen as the primary goal of freight. To support that effort, policies and/or projects are recommended that improve the mobility of all freight modes. The Indiana Multimodal Freight Plan and Kentucky Freight Plan and other federal and state documents were also reviewed as part of the planning process. The following recommendations have been identified through CAC participation, past surveys and/or stakeholder interviews within the freight planning area. Table 6.7 lists recommended strategies for improving on-road freight movement.

Table 6.7: Freight Recommendations

F-1	Prioritize freight-related transportation projects that reduce emissions.
F-2	Improve connectivity for freight movement between all modes.
F-3	Continue to work with the riverports, railroads, and airports to identify opportunities and solve unique infrastructure challenges.
F-4	Encourage participation of freight stakeholders in the development of future MPO safety, vulnerability, and transportation plans.
F-5	Emphasize the importance of having adequate truck parking available.
F-6	Encourage the adoption of access management principles that maintain mobility on arterial corridors.
F-7	Encourage grade separation of rail crossings at high conflict locations.
F-8	Encourage the implementation of Traffic Incident Management (TIM) standards to quickly clear non-recurring incidents.
F-9	Support projects that provide alternative routes for commercial trucks to avoid congested areas.
F-10	Support projects that provide redundancy for commercial trucks along the priority truck network.
F-11	Protect trasnportation assets from potential freight related incidents by identifying potential barriers restricting freight movements and encouraging LPAs to plan work zones and detours to handle freight vehicles.
F-12	Maintain/upgrade infrastructure to eliminate the need for weight/size restrictions.
F-13	Encourage freight friendly geometry of all roads and improve intersections by incorporating modernized traffic controls.
F-14	Encourage freight to be incorporated into complete streets designs when applicable.

Sustainability/Climate/ Resiliency Recommendations

Strategies for becoming more resilient and sustainable in infrastructure and transit vary between physical actions and planning/policy actions. Planning with a focus on sustainability and resilience will give agencies and communities the ability to adapt and rebound quickly and effectively after a shock or stressor, such as a flooding event. Table 6.8 lists recommended strategies for sustainability, climate, and resiliency. The Evansville MPO will work with the technical and policy committees and local communities to determine which actions will work best for the planning area.

Table 6.8: Sustainability/Climate/Resiliency Recommendations

SCR-1	Coordinate with local agencies to evaluate which roads are most vulnerable and identify likely detour routes of critical corridors, emergency evacuation routes and snow routes and prioritize projects along those routes.
SCR-2	Use future climate projections to adequately design infrastructure.
SCR-3	Incorporate green infrastructure such as rain gardens, urban forest, vegetated swales, vegetated filter strips, permeable pavements, grass pavers, and evaluate curb and gutter use during design.
SCR-4	Develop a strategy to map areas prone to stormwater flooding and a strategy to address any existing problem areas and monitor for future issues.
SCR-5	Support design policies that require 1% of stormwater runoff generated by new development to be detained for at least 24 hours.
SCR-6	Promote anti-idle programs.
SCR-7	Utilize cool pavement coatings and techniques.
SCR-8	Encourage the Installation of solar panels at bus stops and METS/HART/WATS managed buildings.
SCR-9	Place temperature monitors on METS/HART/WATS buses to help identify any hot spots.
SCR-10	Support a routine culvert/bridge maintenance program that includes identifying, monitoring, and maintaining any problem areas.
SCR-11	Utilize sustainable construction material.

Safety Recommendations

The Evansville MPO is committed to prioritizing safety in order to reduce the risk of death and serious injury that result from incidents on transportation systems in our region. The MPO attended several Road Safety Champion Webinars and looked at various materials available including FHWA's *Making Our Roads Safer: One Countermeasure at a Time* resource to help develop a list of recommendations utilizing the 4 E's of Safety.

The 4 E's of Safety include engineering, enforcement, education, and emergency management. Engineering addresses transportation infrastructure improvements to prevent crashes or reduce the severity. Education ensures the users are knowledgeable of traffic laws and provides the users information to make better decisions while driving. Enforcement encourages a more visible police presence and enforcement of traffic laws to deter motorists from unsafe driving behavior, especially those that lead to fatalities/injuries. Emergency Response helps ensure rapid response when responding to incidents and reliability of the transportation network to help ensure safe and quick connectivity to hospitals.

The Evansville MPO will work with local emergency response agencies and LPA's to determine which recommendations work best for the planning area. Appendix G provides more details on Safety and Security Planning.

Under federal regulations, the MTP must include a financial plan that demonstrates the MTP 2050 is implementable and fiscally constrained. Federal, state, and local generated revenue sources make up the majority of funding to support transportation system projects in the Plan. The financial plan compares the estimates of funds that are reasonably expected to be available for transportation uses, including transit, and the cost of constructing, maintaining and operating the total (existing, plus planned) transportation system over the period of the plan. As such, the development of reasonable funding estimates and costs is essential to the development of a transportation plan that is consistent with the federal requirements for fiscal constraint.

07 FUNDING

Kansas Road - Vanderburgh County

Federal Sourced Programs

The Infrastructure Investment and Jobs Act (IIJA), signed into law November 15, 2021, authorizes federal funding for transportation and infrastructure spending. Apportioned funding for transportation projects in the urban area is through core funding programs. These funds may be used on the system of federal, state and local jurisdictional roadways that are functionally classified as Major Collector or above, and on the transit system. The classification process is based on FHWA/FTA guidelines and finalized by agreement between the MPO, State and Local Public Agencies (LPAs). IIJA core programs include, but are not limited to, the programs listed in Table 7.1.

State Funds

State funds can be used as the sole funding instrument for a project or as matching funds to the federal assistance for state-initiated highway projects or programs. The state funds are administered by INDOT and KYTC and are allocated through their agency project selection processes.

State transit funding is provided by INDOT for METS. The State of Indiana Public Mass Transportation Fund (PMTF) provides grant funds to public transit systems throughout Indiana that receive federal funds through the Federal Transit Administration. Capital and operating funds are allocated through a performance-based formula. Operating and capital projects require a 50% local match.

KYTC provides State transit funding for HART. The Commonwealth of Kentucky matches capital funds at 10% of the total cost of projects under Section 5307 and 5339, leaving just a 10% local match for the City of Henderson. Transportation Development Credits (Toll Credits) may be used as a credit toward the non-Federal matching share of federally assisted transit projects. Toll credits reward states that spend their toll revenue on projects that would otherwise require federal-aid support. Toll Credits do not provide cash to the project to which they are applied, but their use effectively raises the federal share up to 100 percent on projects receiving Toll Credits. Kentucky does not provide funding for planning and operating costs.

Table 7.1: IIJA Core Programs

Federal Highway Administration (FHWA) Administered		Federal Transit Administration (FTA) Administered
Surface Transportation Block Grant (STBG)	PROTECT Formula Program	Section 5303 - Metropolitan Planning Program
Highway Safety Improvement Program (HSIP)	National Highway Performance Program (NHPP)	Section 5307 - Urbanized Area Formula Program
Congestion Mitigation and Air Quality (CMAQ)	National Highway Freight Program (NHFP)	Section 5339 - State of Good Repair Program
Carbon Reduction Program (CRP)		Section 5310 - Enhanced Mobility of Seniors and Individuals with Disabilities Program

Local Sourced Funding

There are a variety of transportation funding mechanisms available to local governments. Although many options are available, not all revenue sources may be used to fund or serve as a match to federal funds for improvement projects. Portions of some revenue sources are allocated to fund routine maintenance of transportation facilities, pay employee wages, and maintain equipment. Revenue sources available annually to the LPAs include, but are not limited to, those shown in Table 7.2.

Table 7.2: Revenue Sources

Indiana Local Revenue Sources	Kentucky Local Revenue Sources
Local Road and Street (LRS)	Municipal Road Aid (MRA)
Motor Vehicle Highway (MVH)	County Road Aid (CRA)
Cumulative Bridge Fund	Local Economic Assistance (LEA)
Local Transit Revenue	Rural Secondary (RS) Program
	Local Transit Revenue

Financial Feasibility

Roadway

The MTP 2050 must have a financial plan, which is defined as sufficient financial information to demonstrate that the proposed transportation system improvements can be supported using reasonably available resources, with system level estimates of funding available to operate and maintain the federally supported transportation system. Projections of federal funding involve a measure of uncertainty as the current legislation authorizing federal transportation will expire in 2027. As such, the funding projections used in the federal fiscal constraint analysis assume the federal funding remains at the estimated FY 2026 apportionment levels. Federal fiscal constraint for the local program portion of the MTP 2050 is demonstrated in Table 7.3. Federal funds within the analysis timeframes of the MTP 2050 are within the anticipated Federal funding levels, indicating fiscal reasonableness for local federal-aid projects.

For purposes of Indiana local fiscal constraint, revenue from the Motor Vehicle Highway, Local Road and Street, and Cumulative Bridge accounts is considered. Kentucky revenues include Municipal and County Road Aid, Local Government Economic Assistance, and Rural Secondary Program. The average local revenues have been estimated by using a 5-year historical average (2017 – 2021). These revenues are projected to increase at a conservative rate of 0.5% per year to the year 2050, a calculated average using historical annual growth rates of the local funding revenues.

Table 7.3: MTP 2050 Federal Fiscal Constraint

Funding Source	All amounts in Millions			MTP 2050 Total
	2024-2030	2031-2040	2041-2050	
Indiana LPA Program of Projects				
MPO Attributable				
STBG-U	$34.8	$50.2	$50.2	$135.1
HSIP	$9.2	$13.2	$13.2	$35.6
CMAQ	$11.3	$16.2	$16.2	$43.7
STBG -TA	$5.1	$7.4	$7.4	$19.9
CRP	$1.1	$1.6	$1.6	$4.3
PROTECT	$1.6	$2.3	$2.3	$6.1
Subtotal	**$61.5**	**$88.6**	**$88.6**	**$244.7**
State Attributable				
STBG-R	$-	$20	$9	$29
Subtotal	**$-**	**$20**	**$9**	**$29**
Note: Indiana HSIP includes annual STBG penalty funding.				
Kentucky LPA program of projects				
MPO Attributable				
SHN (STBG)	$5.4	$7.8	$7.8	$21.0
TA	$0.6	$0.8	$0.8	$2.2
CRP	$0.6	$0.9	$0.9	$2.5
Subtotal	**$6.6**	**$9.5**	**$9.5**	**$25.6**
Local Project Federal Funding (Indiana & Kentucky)				
Source	**2024-2030**	**2031-2040**	**2041-2050**	**Total**
Available Federal	$68	$118	$107	$299
Programmed Federal	$59	$116	$74	$248

COMMUNITY CROSSING MATCHING GRANT

The Community Crossings Matching Grant (CCMG) program, established by the Indiana General Assembly in 2016, provides a valuable tool for local governments to invest in road and bridge projects that catalyze economic development, create jobs, and strengthen transportation networks. Since its enactment, LPAs in the Evansville MPO region have received over $18 million in CCMG funding towards improving the safety and reliability of local roads.

LPA - Urbanized	Funds Awarded Since 2016
Evansville	$4,777,155
Vanderburgh County	$5,860,276
Newburgh	$3,009,632
Warrick County	$4,636,311

LPA - Planning Area	Funds Awarded Since 2016
Darmstadt	$1,040,399
Boonville	$3,620,197
Elberfeld	$601,930
Lynnville	$22,947
Tennyson	$5,606

Table 7.4 summarizes local revenues and federal fund matching costs for the MTP 2050. Local fiscal constraint is verified by positive balances for regional LPAs. Operations and maintenance efforts are sustainable based on funds available in excess of MTP costs.

These demonstrations assume that federal funds are applied only to construction costs. The assumed federal/local split is 80% federal and 20% local, unless the project is known to be completely funded locally or is expected to receive a significant outside source of aid, such as an earmark.

For the KYTC fiscal analysis, historical statewide expenditure levels for highway construction and maintenance were modeled by using a base amount of $850M in 1993 and applying an annual growth rate of 4.2%. The statewide maintenance/operations expenses were modeled by using a base amount of $300M in 1993 and applying an annual growth rate of 4.5%. The annual estimates of both the revenues and expenditures for Henderson County were developed by calculating the average percentage of both the statewide highway construction and maintenance expenses and the statewide maintenance/operations expenses that were allocated to Henderson County over a 20-year period. Subtracting the maintenance/operations expenses from the construction and maintenance expenditures resulted in an estimate of the annual amount expected to be available for highway construction projects. Table 7.5 demonstrates fiscal constraint for the KYTC program with the comparison of the estimated funds available for projects to the total project costs by analysis period.

As indicated in Tables 7.3, 7.4 and 7.5, the urban area federal and local funding totals for all analysis periods remains a surplus. Together, these tables indicate the MTP 2050 is reasonably constrained.

Table 7.4: Local Revenues and Federal Fund Matching Costs

	Projected Local Revenues (in millions) 2024-2050	Projected Local Matching Costs (in millions) 2024-2050	Revenues Available for Operations/ Maintenance (in millions)
Indiana			
Vanderburgh County	$284	$33	$251
City of Evansville	$257	$24	$233
Warrick County	$152	$42	$110
Kentucky			
City of Henderson	$17	$5	$12

Table 7.5: Fiscal Constraint for the KYTC Program

Analysis Period	KYTC - Henderson: in Millions	
	Project Costs (in millions)	Funds Available (in millions)
FY 2024-2030	$18.30	$102.01
FY 2031-2040	$152.30	$262.01
FY 2041-2050	$185.00	$357.99
Total	$355.60	$722.01

Transit

Federal Funding

It is anticipated that METS and HART will continue to receive Federal Transit Administration (FTA) Section 5307 Urbanized Area Formula Grant funds, Section 5339 Bus and Bus Facilities Grants, and Section 5310 Enhanced Mobility of Seniors & Individuals with Disabilities Grants to assist with capital and operating costs. Section 5307 funds can be used for any capital projects and operating costs. Section 5339 funds can be used to purchase buses, for bus equipment, and on bus-related facilities. Section 5310 funds can be used for paratransit vehicles or to improve accessibility to the fixed route system. METS is also eligible to use CMAQ funds to purchase vehicles or initiate operations of a new route. Federal, State, and local funding projections are shown in Table 7.6.

State Funding

The State of Indiana's Public Mass Transit Fund (PMTF) can be used for operating expenses for METS. The source of these funds is a fixed percentage of the Indiana State Sales Tax. The PMTF is allocated based on a formula which considers fleet size, ridership and operating costs. The State of Kentucky does not have a dedicated transit fund; however, HART does receive state funds and transportation development credits from Kentucky to pay 10% to 20% of the cost of capital projects.

Local Funding

METS and HART are required to provide at least a 50% match to the Federal funds for operating and at least 20% for capital projects. The match typically comes from the City's general budget. METS also has Riverboat funding that can be used for capital projects.

Both METS and HART make the most of the available funding they receive from the FTA and the State. In some years, major capital projects require additional funding compared to the previous year. Both agencies typically provide the required 20% match for all Capital and Preventive Maintenance Costs. They often must provide more than the 50% match for Operating expenses. The amount they spend each year for capital projects is dependent upon the amount of State and Federal funding they receive.

Table 7.6: Transit Funding Projections

		2024-2030	2031-2040	2041-2050
METS	Federal	$26.4	$45.2	$54.4
	State	$16.4	$24.6	$26.1
	Local	$31.7	$54.3	$65.3
	Total	$74.5	$124.1	$145.8
HART	Federal	$7.6	$11.7	$12.2
	State	$0.6	$0.9	$1.0
	Local	$6.7	$10.3	$10.8
	Total	$14.9	$22.9	$24.0

Ohio River Crossing

The Interstate 69 corridor was first identified in the 1991 Intermodal Surface Transportation Efficiency Act as Corridor 18, a High Priority Corridor on the National Highway System. The entire Interstate 69 corridor, from Michigan to Texas, consists of 32 Sections of Independent Utility (SIUs). SIU 4, known locally as the Ohio River Crossing, will connect Interstate 69 in the City of Evansville, Indiana, to Interstate 69 on the south side of Henderson, KY.

On June 30, 2016, Indiana Governor Mike Pence and Kentucky Governor Matt Bevin signed a memorandum of agreement (MOA) directing both states to take the next steps in the advancement of the I-69 Ohio River Crossing (ORC) project development.

Project Fiscal Constraint

The following information is a summary of the fiscal status of the I-69 ORX Financial Plan, (https://i69ohiorivercrossing.com/project-documents). The Project consists of three sections (see Figure 7.1) which allows the project to be managed more effectively as funding and project delivery methods are identified.

Section 1, being overseen by KYTC, includes all project work from KY 425 to US 60 in Henderson Kentucky. The funding for this section is included in the Kentucky FY 2020-FY 2026 Highway Plan which was adopted by the Kentucky legislature in 2020. A design-build procurement was completed, and contract awarded in December 2021. Construction commenced in 2022 and is expected to be complete by October 2025.

Section 3 is being overseen by INDOT and is comprised of the approach work in Indiana, from I-69 to the State line. INDOT's delivery of Section 3 includes funds that are available to the Project in the State's normal annual budgeting and as included in the INDOT 2022-2026 STIP. A design-build procurement is expected to be let in 2023 for this section with construction anticipated to begin in 2024 and be completed in 2027.

Section 2 is a bi-state section between Kentucky and Indiana, consisting of the new four-lane bridge connecting Sections 1 and 3, completing the I-69 crossing. As funding and financing strategies are developed for Section 2, the financial plan will be updated to reflect the strategies. Construction is anticipated to begin in 2027 and be complete by 2031. The states are working together to identify opportunities to accelerate the timeline for this Section of the Project.

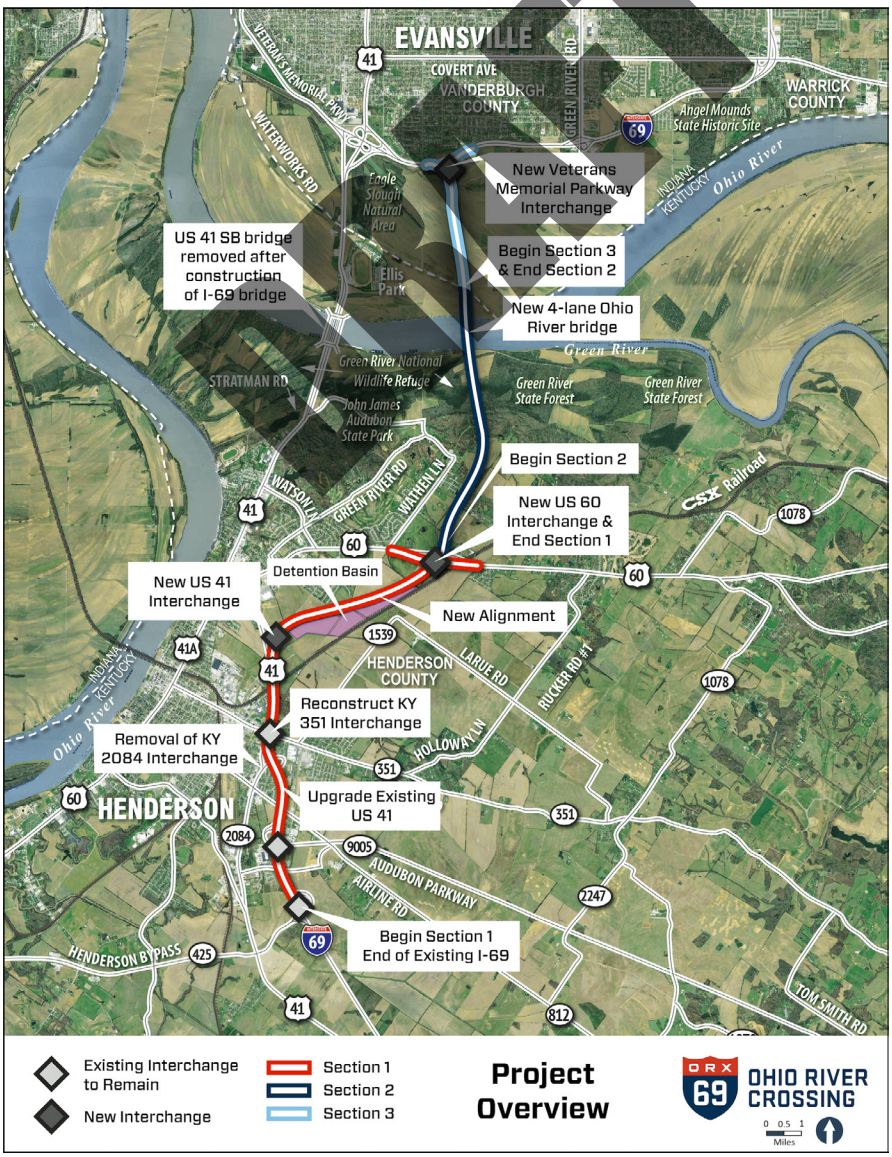
Table 7.7: ORX Project Financial Demonstration, in billions)

Phase 1: Includes Section 1 and Section 3	**$0.5**
Phase 2: Includes Section 2	**$0.7**
Committed, Available, and Reasonably expected to be Available Funding Sources	
Federal Aid, State, Innovative Financing, P3 *	**$1.2**

*The source of funding for the project will continue to be analyzed and fully evaluated as part of the project financial planning process.

The total estimated cost to complete the project in year of expenditure dollars is $1.22 billion (Table 7.7). The issue of fiscal constraint and schedule will continue to be analyzed and fully evaluated as part of the project financial planning process, with the current Financial Plan Annual Updates posted on the ORX website. (https://i69ohiorivercrossing.com/project-documents/)

Figure 7.1: ORX Project Overview



As part of its transportation planning process, Evansville MPO completed the transportation conformity process for the MTP 2050 and 2024 - 2028 TIP. This chapter documents that the MTP 2050 and 2024 -2028 TIP meet the federal transportation conformity requirements in 40 CFR Part 93.

Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) requires that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that transportation activities will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones. 42 U.S.C. 7506(c)(1). EPA's transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), and federally supported highway and transit projects conform to the SIP. 40 CFR Parts 51.390 and 93.

On February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* (*"South Coast II,"* 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone national ambient air quality standard (NAAQS) and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked. These conformity determinations are required in these areas after February 16, 2019. Vanderburgh and Warrick Counties were maintenance areas at the time of the 1997 ozone NAAQS revocation on April 6, 2015 and were also designated attainment for the 2008 ozone NAAQS on May 21, 2012. Therefore, per the *South Coast II* decision, this conformity determination is being made for the 1997 ozone NAAQS on the MTP and TIP.

This conformity determination was completed consistent with CAA requirements, existing associated regulations at 40 CFR Parts 51.390 and 93, and the *South Coast II* decision, according to EPA's *Transportation Conformity Guidance for the South Coast II Court Decision* issued on November 29, 2018.

08 AIR QUALITY

North Main St - Evansville

Transportation Conformity Process

The concept of transportation conformity was introduced in the Clean Air Act (CAA) of 1977, which included a provision to ensure that transportation investments conform to a State implementation plan (SIP) for meeting the Federal air quality standards. Conformity requirements were made substantially more rigorous in the CAA Amendments of 1990. The transportation conformity regulations that detail implementation of the CAA requirements were first issued in November 1993, and have been amended several times. The regulations establish the criteria and procedures for transportation agencies to demonstrate that air pollutant emissions from metropolitan transportation plans, transportation improvement programs and projects are consistent with ("conform to") the State's air quality goals in the SIP. This document has been prepared for State and local officials who are involved in decision making on transportation investments.

Transportation conformity is required under CAA Section 176(c) to ensure that Federally-supported transportation activities are consistent with ("conform to") the purpose of a State's SIP. Transportation conformity establishes the framework for improving air quality to protect public health and the environment. Conformity to the purpose of the SIP means Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are given to highway and transit activities that will not cause new air quality violations, worsen existing air quality violations, or delay timely attainment of the relevant air quality standard, or any interim milestone.

Vanderburgh and Warrick Counties were maintenance areas for the 1997 Ozone NAAQS at the time of revocation and were designated as attainment for the 2008 Ozone NAAQS on May 21, 2012.

2050 Metropolitan Transportation Plan (MTP) Amendment

The 2050 MTP for the Evansville, Indiana - Henderson, Kentucky Urbanized Area is developed through the cooperative transportation planning process of the Evansville Metropolitan Planning Organization. Informed by input from public officials, local public agencies, a Citizen's Advisory Committee and the public, the 2050 MTP is a guide for the implementation of multimodal transportation improvements, policies and programs in the Metropolitan Planning Area through 2050.

2024-2028 Transportation Improvement Program (TIP)

The 2024 – 2028 TIP is one part of the Evansville MPO's transportation planning process. The planning process includes the development of a Metropolitan Transportation Plan (MTP) which is adopted by the MPO. As projects in the MTP advance to implementation, they are programmed in the TIP for study, design, and construction, provided they attain environmental permits and other necessary clearances.

The TIP identifies and prioritizes the Evansville MPO's short-term program of projects that is consistent with the MTP. The TIP development procedures include working with state Departments of Transportation (DOTs), Local Public Agencies (LPAs) and the appropriate transit operators in soliciting project proposals. This collaboration also includes engaging the public and the various Evansville MPO Committees to keep them informed about the regional transportation plans. Following public and agency review, the draft TIP is approved by the MPO, forwarded to INDOT and KYTC, then on to federal funding agencies—the Federal Highway Administration, and the Federal Transit Administration. The TIP must include a minimum four-year program of projects, and it must be updated at least every four years.

Transportation Conformity Determination: General Process

Per the court's decision in *South Coast II*, beginning February 16, 2019, a transportation conformity determination for the 1997 ozone NAAQS will be needed in 1997 ozone NAAQS nonattainment and maintenance areas identified by EPA[1] for certain transportation activities, including updated or amended metropolitan MTPs and TIPs. Once US DOT makes its 1997 ozone NAAQS conformity determination for the MTP 2050 conformity will be required no less frequently than every four years. This conformity determination report will address transportation conformity for the MTP 2050 and 2024 – 2028 TIP.

Transportation Conformity Requirements

On November 29, 2018, EPA issued T*ransportation Conformity Guidance for the South Coast II Court Decision*[22] (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in areas that were nonattainment or maintenance for the 1997 ozone NAAQS when the 1997 ozone NAAQS was revoked, but were designated attainment for the 2008 ozone NAAQS in EPA's original designations for this NAAQS (May 21, 2012).

The transportation conformity regulation at 40 CFR 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for MTPs and TIPs include: latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures (93.113(b) and (c), and emissions budget and/or interim emissions (93.118 and/or 93.119).

For the 1997 ozone NAAQS areas, transportation conformity for MTPs and TIPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the *South Coast II* court upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, or budget or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for MTP 2050 and the 2024 – 2028 TIP can be demonstrated by showing the remaining requirements in Table 1 in 40 CFR 93.109 have been met. These requirements, which are laid out in Section 2.4 of EPA's guidance and addressed below, include:

- Latest planning assumptions (93.110)
- Consultation (93.112)
- Transportation Control Measures (93.113)
- Fiscal constraint (93.108)

Latest Planning Assumptions

The use of latest planning assumptions in 40 CFR 93.110 of the conformity rule generally apply to regional emissions analysis. In the 1997 ozone NAAQS areas, the use of latest planning assumptions requirement applies to assumptions about transportation control measures (TCMs) in an approved SIP.

The development of the MTP 2050 included updating the land use assumptions derived from the estimates of current and future population, employment, travel, and congestion. All forecasts utilized the best available planning assumptions concerning development and socio-economic forecasts to the year 2050.

The Indiana SIP does not include any TCMs for the Vanderburgh and Warrick County Orphan Maintenance Area.

1 The areas identified can be found in EPA's "Transportation Conformity Guidance for the South Coast II Court Decision, EPA-420-B-18-050, available on the web at: www.epa.gov/state-and-local-transportation/policy-and-technical-guidance-state-and-local-transportation.

2 Available from https://www.epa.gov/sites/production/files/2018-11/documents/420b18050.pdf

Consultation Requirements

The consultation requirements in 40 CFR 93.112 were addressed both for interagency consultation and public consultation.

Interagency consultation was conducted with INDOT, IDEM, FHWA, FTA, and EPA. During the preparation of the 2050 MTP, 2024–2028 TIP, and the development of the conformity determination analysis, the consulting agencies communicated on a regular basis. Interagency consultation was conducted consistent with the Indiana Conformity Consultation Guidance and the Conformity SIP as applicable.

Public consultation will be conducted consistent with planning rule requirements in 23 CFR 450. The Evansville MPO will release the conformity documentation for a public comment period from January 25, 2023 through February 24, 2023.

Timely Implementation of TCMs

No Traffic Control Measures (TCM) are included in the SIP for the Vanderburgh and Warrick County Orphan Maintenance Area.

Fiscal Constraint

Transportation conformity requirements in 40 CFR 93.108 state that transportation plans and TIPs must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450. The amended MTP 2050 and 2024 – 2028 TIP are fiscally constrained.

The MTP includes a financial plan that demonstrates how the plan can be implemented. The financial plan compares the estimates of funds that are reasonably expected to be available for transportation uses, including transit, and the cost of constructing, maintaining and operating the total (existing, plus planned) transportation system over the period of the plan. The detailed discussion can be found in Chapter 7.

The FY 2024-2028 TIP includes a summary of the fiscal constraint analysis for local highway projects listed in the TIP document. The details for the federal funds and programmed amounts are also located in the document. The difference between funds available and the programmed amounts is anticipated to be recovered with other federal fund surplus, project costs savings, and/or additional local contributions. The local match required for federally funded projects is supplied from a variety of local sources including LRSA, MVHA and others. The LPA is required, prior to beginning projects, to have identified the specific source and amount required for their local match. The detailed discussion can be found in the FY 2024-2028 TIP, Chapter 3.

Conclusion

Once complete, the conformity determination process for the MTP 2050 and 2024–2028 TIP demonstrates that these planning documents meet the Clean Air Act and Transportation Conformity rule requirements for the 1997 ozone NAAQS.

Understanding how transportation improvement projects can impact the environment is a critical element in the planning process. It's important to be able to anticipate the impacts and make every effort during the planning and design phases to ensure that any unnecessary environmental impacts are avoided when possible. When environmental impacts can't be avoided it's critical to minimize the impacts and mitigate for those impacts when feasible.

Discussion of types of potential mitigation activities developed in consultation with Federal, State and Tribal land management, wildlife and regulatory agencies is required by 23 CFR 450.324(10). This discussion is at the policy/strategy level, not project specific. The policy level discussion considers the preliminary nature of project details available at the long-range plan stage of project development. While detailed environmental analysis is not appropriate at this point, consultation with environmental resource agencies provides an opportunity to compare transportation plans with resource plans and initiate a discussion of potential mitigation activities, location of mitigation activities and identification of mitigation strategies with the greatest potential to restore and maintain environmental functions affected by the Metropolitan Transportation Plan. Table A.1 lists resource, tribes, and regulatory agencies solicited for input to the plan.

A ENVIRONMENTAL

The preliminary assessment identifies projects that have environmental resources within a half mile of the proposed projects. Projects advancing to construction require additional study and detailed design to more clearly describe project features. This process enables environmental impacts and appropriate mitigation measures to be established. Projects using state or federal funds will require detailed environmental study and permitting in conformance with the National Environmental Policy Act (NEPA) and other federal, state and local regulations.

Preliminary Red Flag Environmental Investigation Data

Tables A.2 through A.10 include a listing of potential conflicts with Infrastructure, Mining/ Mineral Exploration, Hazardous Material concerns, Water Resources, and Historical Resources within a ½ mile radius of the proposed project area. The categories included in the review were chosen because they were generally available throughout the MPO study area in a GIS format. The INDOT Red Flag Investigation layers were used for infrastructure, mining/mineral exploration, hazardous material concerns and water resources. The SHAARD data was used for the historic resources in Indiana. Various sources were used for the Kentucky Data and are identified below. No publicly available historic data was found for Kentucky.

Table A.1: Environmental Justice Population Areas

Agency Coordination			Tribal Consultation
Angel Mounds	Indiana Department of Natural Resources-Division of Historic Preservation & Archaeology	US Army Corps of Engineers-Louisville District, Indianapolis Regulatory Office	Absentee Shawnee Tribe of Oklahoma
Blue Grass Fish and Wildlife Area	Indiana Southern Railroad	US Department of Housing & Urban Development -Chicago Region Office	Delaware Nation of Oklahoma
Conexus Indiana	John James Audubon State Park	US Fish & Wildlife Service-Bloomington Indiana Field Office	Delaware Tribe of Indians
CSX Transportation	Kentucky Department of Environmental Protection	US Fish & Wildlife Services-Frankfort Field Office	Eastern Shawnee Tribe of Oklahoma
Evansville Airport	Kentucky Division of Water	USDA Natural Resources Conservation Service	Miami Tribe of Oklahoma
Evansville Port Authority	Kentucky Heritage Council	Vanderburgh County Historian	Osage Nation
Evansville Western Railroad	National Park Service, Midwest Regional Office	Vanderburgh County Historical Society	Peoria Tribe of Indians of Oklahoma
Henderson Airport	National Park Service-Southeast Region	Vanderburgh Emergency Management Agency	Pokagon Band of Potawatomi Indians
Henderson Emergency Management Agency	Natural Resources Conservation Service	Warrick County Historian	Shawnee Tribe
Historic Southern Indiana	Norfolk Southern Railroad	Warrick Emergency Management Agency	United Keetoowah Band of Cherokee Indians
Indiana Department of Environmental Management, Southwest Regional Office	Port Authority-Henderson	Indiana Department of Transportation (INDOT)	
Indiana Department of Natural Resources-Division of Fish and Wildlife Services	Ports of Indiana-Mount Vernon	Kentucky Transportation Cabinet (KYTC)	

Table A.2: Infrastructure

Infrastructure			Religious Facility	School	Cemetery	Pipeline	Trail/Proposed Trail	Recreational Facility	Hospital	Managed Land/Park	Airport	Railroad-In Service	Railroad-Abandoned
Road	**Limits**	**Type**											
I 69	KY 425 to I-69	Upgrade/New											
3rd Street	Court St to Parrett St	Reconstruct	19	5	1	0	7	10	1	8	2	1	0
Baseline Road	Husky Way to Old State Rd	Widen from 2 to 3 lane	0	0	1	1	0	0	0	0	0	0	0
Boonville-New Harmony Road	Petersburg Rd to Green River Rd	Reconstruct	2	0	0	0	0	0	0	0	0	1	0
Boonville-New Harmony Road	US 41 to Petersburg Rd	Reconstruct	1	0	1	0	0	3	0	0	0	1	0
Broadway Avenue	City Limits to Barker Ave	Reconstruct	5	2	2	1	1	5	0	2	0	2	0
Burkhardt Road	Lincoln Ave to Lloyd Expy	Widen from 2 to 5 lanes	2	0	0	1	0	1	1	0	0	0	0
Casey Road	Vann Rd to SR 66	Widen from 2 to 3 lanes	2	3	0	2	1	1	0	0	0	0	0
Claremont Avenue	Redbank Rd to Barker Ave	Reconstruct	5	1	0	1	2	3	0	1	0	3	0
Columbia Street	E of Hirschland Rd to Cross Pointe Blvd	New Road (2 or 3 lanes)	0	0	0	2	1	0	0	0	0	0	0
Epworth Road	SR 662 to Lincoln Ave	Widen from 2 to 3 lanes	4	0	2	3	3	0	1	1	0	0	0
Epworth Road	Lincoln Ave to S of SR 66	Widen from 2 to 5 lanes	3	0	0	4	3	0	1	0	0	0	0
Kratzville Road	Diamond Ave to Darmstadt Rd	Reconstruct	8	7	3	1	9	8	0	3	1	2	0
Lenn Road	Lincoln Ave to Sharon Rd	Widen from 2 to 3 lanes	1	1	1	3	1	2	0	0	0	0	0
Libbert Road	SR 66 to Oak Grove Road	Widen from 2 to 3 lanes	3	0	0	3	2	1	0	0	0	0	0
Lincoln Ave	SR 66 to Anderson Rd	Widen from 2 to 3 lanes	1	0	0	2	3	2	0	1	0	0	0
Lincoln Avenue	Green River Rd to Newburgh Rd	Widen from 2 to 3 lanes	4	3	1	1	0	3	0	0	0	0	0
Oak Grove Road	Burkhardt Rd to Cross Pointe Blvd	Widen from 2 to 5 lanes	0	0	0	1	1	0	0	0	0	1	0
Oak Grove Road	SR 261 to Anderson Rd	Widen from 2 to 3 lanes	5	4	1	0	2	3	0	0	0	0	0
Oak Grove Road	Anderson Rd to Wethers Rd	Widen from 2 to 3 lanes	2	0	1	0	3	0	0	0	0	1	0
Oak Hill Road	Lynch Rd to St. George Rd	Widen from 2 to 3 lanes											
Oak Hill Road	St George Rd to Eastwood Dr	Widen from 2 to 3 lanes	4	0	1	0	1	0	0	0	0	1	0
Oak Hill Road	Eastwood Dr to Millersburg Rd	Widen from 2 to 3 lanes											
Petersburg Road	Boonville-New Harmony Rd to Kansas Rd	Reconstruct	0	0	1	0	0	2	0	1	0	0	0
Red Bank Road	Broadway Ave to SR 62/ Lloyd Expy	Reconstruct	3	1	0	0	1	3	0	1	0	0	0
Red Bank Road	N of SR 62/Lloyd Expy to Upper Mount Vernon Rd	Reconstruct	1	1	1	1	1	2	0	0	0	1	0
Roeder Road	Wethers Rd to Yankeetown Rd	Widen	1	0	0	1	3	0	0	0	0	1	1
Schutte Road	SR 62/Lloyd Expy to Broadway Ave	Reconstruct	0	1	1	1	4	1	0	0	0	0	0
Stringtown Road	Diamond Ave to Mill Rd	Reconstruct	6	5	1	2	2	9	0	4	0	0	0
Telephone Road	Bell Rd to Fuquay Rd	Widen from 2 to 3 lanes											
Vann Road	Epworth Rd to Libbert Rd	New Road	1	0	0	3	4	0	0	0	0	0	0
Vann Road	Libbert Rd to Bell Rd	Widen	1	0	1	1	2	0	0	0	0	0	0
Virginia Street	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	3	0	0	3	0	3	0	0	0	0	1
Vogel Road	E of Hirschland Rd to Cross Pointe Blvd	New Road (3 lanes)	0	0	0	1	1	0	0	0	0	0	0
Vogel Road	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	0	0	0	0	0	3	0	0	0	1	1

Environmental Underway/Complete

Table A.3: Mining and Mineral Resources

Mining and Mineral Resources			Mine-Surface	Mine-Underground	Oil and Gas Wells	Mineral Resources
Road	Limits	Type				
I 69	KY 425 to I-69	Upgrade/New				
3rd Street	Court St to Parrett St	Reconstruct	0	0	1	0
Baseline Road	Husky Way to Old State Rd	Widen from 2 to 3 lane	0	0	15	0
Boonville-New Harmony Road	Petersburg Rd to Green River Rd	Reconstruct	0	0	2	0
Boonville-New Harmony Road	US 41 to Petersburg Rd	Reconstruct	0	0	9	0
Broadway Avenue	City Limits to Barker Ave	Reconstruct	0	1	3	0
Burkhardt Road	Lincoln Ave to Lloyd Expy	Widen from 2 to 5 lanes	0	0	0	0
Casey Road	Vann Rd to SR 66	Widen from 2 to 3 lanes	1	0	0	0
Claremont Avenue	Redbank Rd to Barker Ave	Reconstruct	0	2	1	0
Columbia Street	E of Hirschland Rd to Cross Pointe Blvd	New Road (2 or 3 lanes)	0	0	0	0
Epworth Road	SR 662 to Lincoln Ave	Widen from 2 to 3 lanes	0	2	3	0
Epworth Road	Lincoln Ave to S of SR 66	Widen from 2 to 5 lanes	0	2	0	0
Kratzville Road	Diamond Ave to Darmstadt Rd	Reconstruct	0	6	18	0
Lenn Road	Lincoln Ave to Sharon Rd	Widen from 2 to 3 lanes	1	3	3	0
Libbert Road	SR 66 to Oak Grove Road	Widen from 2 to 3 lanes	0	0	0	0
Lincoln Avenue	SR 66 to Anderson Rd	Widen from 2 to 3 lanes	1	0	2	0
Lincoln Avenue	Green River Rd to Newburgh Rd	Widen from 2 to 3 lanes	0	0	0	0
Oak Grove Road	Burkhardt Rd to Cross Pointe Blvd	Widen from 2 to 5 lanes	0	0	0	0
Oak Grove Road	SR 261 to Anderson Rd	Widen from 2 to 3 lanes	1	0	0	0
Oak Grove Road	Anderson Rd to Wethers Rd	Widen from 2 to 3 lanes	2	1	1	0
Oak Hill Road	Lynch Rd to St. George Rd	Widen from 2 to 3 lanes				
Oak Hill Road	St George Rd to Eastwood Dr	Widen from 2 to 3 lanes	0	0	2	0
Oak Hill Road	Eastwood Dr to Millersburg Rd	Widen from 2 to 3 lanes				
Petersburg Road	Boonville-New Harmony Rd to Kansas Rd	Reconstruct	0	0	3	0
Red Bank Road	Broadway Ave to SR 62/ Lloyd Expy	Reconstruct	0	0	1	0
Red Bank Road	N of SR 62/Lloyd Expy to Upper Mount Vernon Rd	Reconstruct	0	0	2	0
Roeder Road	Wethers Rd to Yankeetown Rd	Widen	9	0	15	0
Schutte Road	SR 62/Lloyd Expy to Broadway Ave	Reconstruct	0	0	65	0
Stringtown Road	Diamond Ave to Mill Rd	Reconstruct	0	2	2	0
Telephone Road	Bell Rd to Fuquay Rd	Widen from 2 to 3 lanes				
Vann Road	Epworth Rd to Libbert Rd	New Road	0	1	0	0
Vann Road	Libbert Rd to Bell Rd	Widen	0	0	0	0
Virginia Street	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	0	0	1	0
Vogel Road	E of Hirschland Rd to Cross Pointe Blvd	New Road (3 lanes)	0	0	0	0
Vogel Road	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	0	0	1	0

Environmental Underway/ Complete

Table A.4: Hazardous Materials

Hazardous Materials			UG Storage Tanks	Leaking UG Storage Tanks	Waste Treatment Storage Disposal	State Cleanup Site	Brownfield	Tire Waste Site	RCRA Generator/TSD	NPDES Pipe Location	NPDES Facilities	Institutional Controls	Confined Feeding Operation	Notice of Contamination
Road	**Limits**	**Type**												
I 69	KY 425 to I-69	Upgrade/New												
3rd Street	Court St to Parrett St	Reconstruct	18	29	0	8	11	0	9	17	19	7	0	0
Baseline Road	Husky Way to Old State Rd	Widen from 2 to 3 lane	0	0	0	0	0	0	0	1	9	0	0	0
Boonville-New Harmony Road	Petersburg Rd to Green River Rd	Reconstruct	0	3	0	0	0	1	0	0	7	0	0	0
Boonville-New Harmony Road	US 41 to Petersburg Rd	Reconstruct	0	4	0	0	0	0	0	1	7	0	0	0
Broadway Avenue	City Limits to Barker Ave	Reconstruct	5	5	0	1	0	0	2	8	13	1	0	0
Burkhardt Road	Lincoln Ave to Lloyd Expy	Widen from 2 to 5 lanes	5	1	0	1	0	0	0	0	3	0	0	0
Casey Road	Vann Rd to SR 66	Widen from 2 to 3 lanes	3	2	0	0	0	0	0	0	13	0	0	0
Claremont Avenue	Redbank Rd to Barker Ave	Reconstruct	9	5	0	1	1	0	6	8	16	2	0	0
Columbia Street	E of Hirschland Rd to Cross Pointe Blvd	New Road (2 or 3 lanes)	5	0	0	0	0	0	0	0	6	0	0	0
Epworth Road	SR 662 to Lincoln Ave	Widen from 2 to 3 lanes	2	3	0	0	0	0	0	0	4	0	0	0
Epworth Road	Lincoln Ave to S of SR 66	Widen from 2 to 5 lanes	1	0	0	0	0	0	0	0	10	0	0	0
Kratzville Road	Diamond Ave to Darmstadt Rd	Reconstruct	4	7	0	0	3	1	2	1	4	7	0	1
Lenn Road	Lincoln Ave to Sharon Rd	Widen from 2 to 3 lanes	3	1	0	0	0	0	0	0	4	0	0	0
Libbert Road	SR 66 to Oak Grove Road	Widen from 2 to 3 lanes	0	2	0	0	0	0	0	0	8	0	0	0
Lincoln Avenue	SR 66 to Anderson Rd	Widen from 2 to 3 lanes	2	1	0	0	0	0	0	0	3	0	0	0
Lincoln Avenue	Green River Rd to Newburgh Rd	Widen from 2 to 3 lanes	6	4	0	3	3	0	0	0	2	2	0	0
Oak Grove Road	Burkhardt Rd to Cross Pointe Blvd	Widen from 2 to 5 lanes	3	3	0	0	0	0	4	0	13	0	0	0
Oak Grove Road	SR 261 to Anderson Rd	Widen from 2 to 3 lanes	1	0	0	0	0	0	1	0	9	0	0	0
Oak Grove Road	Anderson Rd to Wethers Rd	Widen from 2 to 3 lanes	0	0	0	0	0	0	2	2	12	0	0	0
Oak Hill Road	Lynch Rd to St. George Rd	Widen from 2 to 3 lanes												
Oak Hill Road	St George Rd to Eastwood Dr	Widen from 2 to 3 lanes	0	0	0	0	0	0	0	0	3	0	0	0
Oak Hill Road	Eastwood Dr to Millersburg Rd	Widen from 2 to 3 lanes												
Petersburg Road	Boonville-New Harmony Rd to Kansas Rd	Reconstruct	1	4	0	0	0	0	0	0	6	0	0	0
Red Bank Road	Broadway Ave to SR 62/ Lloyd Expy	Reconstruct	5	2	0	0	0	0	1	1	5	0	0	0
Red Bank Road	N of SR 62/Lloyd Expy to Upper Mount Vernon Rd	Reconstruct	3	0	0	0	1	0	0	0	3	0	0	0
Roeder Road	Wethers Rd to Yankeetown Rd	Widen	0	0	0	0	0	0	0	0	3	0	0	0
Schutte Road	SR 62/Lloyd Expy to Broadway Ave	Reconstruct	0	0	0	0	0	0	0	0	0	0	0	0
Stringtown Road	Diamond Ave to Mill Rd	Reconstruct	14	17	0	4	2	0	2	0	9	9	0	0
Telephone Road	Bell Rd to Fuquay Rd	Widen from 2 to 3 lanes												
Vann Road	Epworth Rd to Libbert Rd	New Road	0	0	0	0	0	0	0	0	15	0	0	0
Vann Road	Libbert Rd to Bell Rd	Widen	0	0	0	0	0	0	0	0	12	0	0	0
Virginia Street	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	14	10	0	1	1	0	5	0	10	1	0	0
Vogel Road	E of Hirschland Rd to Cross Pointe Blvd	New Road (3 lanes)	4	1	0	0	0	0	1	0	9	0	0	0
Vogel Road	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	17	9	0	0	0	0	6	1	18	4	0	0

Environmental Underway/Complete

Table A.5: Water Resources

Water Resources			Floodplain-DFIRM	Lake	River/Stream	Wetland Areas	Stream/Lake-Impaired	Canal Route-Historic	Historic Canal Structure	National Wetland Inventory-Line	National Wetland Inventory-Point
Road	**Limits**	**Type**									
I 69	KY 425 to I-69	Upgrade/New									
3rd Street	Court St to Parrett St	Reconstruct	3	2	0	2	0	1	1	2	0
Baseline Road	Husky Way to Old State Rd	Widen from 2 to 3 lane	6	5	9	23	0	0	0	2	2
Boonville-New Harmony Road	Petersburg Rd to Green River Rd	Reconstruct	7	27	25	46	0	0	0	10	2
Boonville-New Harmony Road	US 41 to Petersburg Rd	Reconstruct	14	57	42	76	0	0	0	4	1
Broadway Avenue	City Limits to Barker Ave	Reconstruct	20	20	9	30	2	0	0	11	0
Burkhardt Road	Lincoln Ave to Lloyd Expy	Widen from 2 to 5 lanes	10	4	4	8	0	0	0	0	0
Casey Road	Vann Rd to SR 66	Widen from 2 to 3 lanes	4	11	16	17	0	0	0	3	0
Claremont Avenue	Redbank Rd to Barker Ave	Reconstruct	10	19	2	23	1	0	0	4	0
Columbia Street	E of Hirschland Rd to Cross Pointe Blvd	New Road (2 or 3 lanes)	9	8	3	15	0	0	0	1	0
Epworth Road	SR 662 to Lincoln Ave	Widen from 2 to 3 lanes	3	14	1	21	0	0	0	5	0
Epworth Road	Lincoln Ave to S of SR 66	Widen from 2 to 5 lanes	3	10	2	11	0	0	0	5	0
Kratzville Road	Diamond Ave to Darmstadt Rd	Reconstruct	32	16	16	48	4	0	0	13	2
Lenn Road	Lincoln Ave to Sharon Rd	Widen from 2 to 3 lanes	6	8	17	13	0	0	0	4	0
Libbert Road	SR 66 to Oak Grove Road	Widen from 2 to 3 lanes	4	12	7	20	0	0	0	1	0
Lincoln Ave	SR 66 to Anderson Rd	Widen from 2 to 3 lanes	5	14	13	19	0	0	0	2	0
Lincoln Avenue	Green River Rd to Newburgh Rd	Widen from 2 to 3 lanes	1	0	1	1	0	0	0	0	0
Oak Grove Road	Burkhardt Rd to Cross Pointe Blvd	Widen from 2 to 5 lanes	18	4	6	8	0	1	0	1	0
Oak Grove Road	SR 261 to Anderson Rd	Widen from 2 to 3 lanes	0	21	9	31	0	0	0	1	0
Oak Grove Road	Anderson Rd to Wethers Rd	Widen from 2 to 3 lanes	1	19	9	29	0	0	0	0	0
Oak Hill Road	Lynch Rd to St. George Rd	Widen from 2 to 3 lanes									
Oak Hill Road	St George Rd to Eastwood Dr	Widen from 2 to 3 lanes	2	9	2	16	0	0	0	0	0
Oak Hill Road	Eastwood Dr to Millersburg Rd	Widen from 2 to 3 lanes									
Petersburg Road	Boonville-New Harmony Rd to Kansas Rd	Reconstruct	2	30	24	48	0	0	0	2	0
Red Bank Road	Broadway Ave to SR 62/ Lloyd Expy	Reconstruct	19	10	10	23	4	0	0	10	0
Red Bank Road	N of SR 62/Lloyd Expy to Upper Mount Vernon Rd	Reconstruct	4	12	9	20	9	0	0	3	0
Roeder Road	Wethers Rd to Yankeetown Rd	Widen	1	28	23	42	2	0	0	3	0
Schutte Road	SR 62/Lloyd Expy to Broadway Ave	Reconstruct	3	18	12	18	0	0	0	1	0
Stringtown Road	Diamond Ave to Mill Rd	Reconstruct	23	14	8	30	3	0	0	9	0
Telephone Road	Bell Rd to Fuquay Rd	Widen from 2 to 3 lanes									
Vann Road	Epworth Rd to Libbert Rd	New Road	5	3	10	9	0	0	0	2	0
Vann Road	Libbert Rd to Bell Rd	Widen	4	10	4	15	0	0	0	1	0
Virginia Street	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	22	7	2	13	0	0	0	1	0
Vogel Road	E of Hirschland Rd to Cross Pointe Blvd	New Road (3 lanes)	5	4	3	10	0	0	0	1	0
Vogel Road	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	21	4	6	9	0	1	0	1	0

Environmental Underway/Complete

Table A.6: Historical Resources

Historical Resources			National Register Structures	IHSSI (County Survey)-Outstanding	IHSSI (County Survey)-Notable	IHSSI (County Survey)-Contributing	IHSSI (County Survey)-Non-Contributing	IHSSI (County Survey)-Demolished	National Register Historic Districts	Cemeteries	Non-Select Bridges	Historic Bridges-Contributing	Historic Bridges-Demolished
Road	**Limits**	**Type**											
I 69	KY 425 to I-69	Upgrade/New											
3rd Street	Court St to Parrett St	Reconstruct	71	124	183	767	221	106	4	1	0	0	0
Baseline Road	Husky Way to Old State Rd	Widen from 2 to 3 lane	0	0	0	4	0	2	0	1	0	0	0
Boonville-New Harmony Road	Petersburg Rd to Green River Rd	Reconstruct	0	0	1	15	0	1	0	0	0	0	0
Boonville-New Harmony Road	US 41 to Petersburg Rd	Reconstruct	0	0	1	7	0	0	0	1	0	0	0
Broadway Avenue	City Limits to Barker Ave	Reconstruct	0	2	3	105	0	2	0	2	0	0	0
Burkhardt Road	Lincoln Ave to Lloyd Expy	Widen from 2 to 5 lanes	1	1	0	11	0	0	0	0	0	0	0
Casey Road	Vann Rd to SR 66	Widen from 2 to 3 lanes	0	0	0	2	0	0	0	0	0	0	0
Claremont Avenue	Redbank Rd to Barker Ave	Reconstruct	0	0	5	276	26	1	0	0	1	0	0
Columbia Street	E of Hirschland Rd to Cross Pointe Blvd	New Road (2 or 3 lanes)	0	0	0	1	0	0	0	0	0	0	0
Epworth Road	SR 662 to Lincoln Ave	Widen from 2 to 3 lanes	0	0	0	12	0	0	0	2	0	0	0
Epworth Road	Lincoln Ave to S of SR 66	Widen from 2 to 5 lanes	0	0	0	0	0	0	0	0	0	0	0
Kratzville Road	Diamond Ave to Darmstadt Rd	Reconstruct	0	1	3	55	0	8	0	3	0	1	1
Lenn Road	Lincoln Ave to Sharon Rd	Widen from 2 to 3 lanes	0	0	0	2	0	0	0	1	0	0	0
Libbert Road	SR 66 to Oak Grove Road	Widen from 2 to 3 lanes	0	0	0	2	0	0	0	0	0	0	0
Lincoln Ave	SR 66 to Anderson Rd	Widen from 2 to 3 lanes	0	0	0	1	0	0	0	0	0	0	0
Lincoln Avenue	Green River Rd to Newburgh Rd	Widen from 2 to 3 lanes	2	2	1	33	0	1	1	1	0	0	0
Oak Grove Road	Burkhardt Rd to Cross Pointe Blvd	Widen from 2 to 5 lanes	0	1	0	2	0	0	0	0	0	0	0
Oak Grove Road	SR 261 to Anderson Rd	Widen from 2 to 3 lanes	0	0	0	3	0	0	0	1	0	0	0
Oak Grove Road	Anderson Rd to Wethers Rd	Widen from 2 to 3 lanes	0	0	0	1	0	0	0	1	0	0	0
Oak Hill Road	Lynch Rd to St. George Rd	Widen from 2 to 3 lanes											
Oak Hill Road	St George Rd to Eastwood Dr	Widen from 2 to 3 lanes	1	1	1	11	0	0	0	1	0	0	0
Oak Hill Road	Eastwood Dr to Millersburg Rd	Widen from 2 to 3 lanes											
Petersburg Road	Boonville-New Harmony Rd to Kansas Rd	Reconstruct	0	1	2	13	0	0	1	1	0	0	0
Red Bank Road	Broadway Ave to SR 62/ Lloyd Expy	Reconstruct	0	0	3	31	0	0	0	0	0	0	0
Red Bank Road	N of SR 62/Lloyd Expy to Upper Mount Vernon Rd	Reconstruct	0	0	5	24	1	0	0	1	0	0	0
Roeder Road	Wethers Rd to Yankeetown Rd	Widen	0	0	0	2	0	0	0	0	0	1	1
Schutte Road	SR 62/Lloyd Expy to Broadway Ave	Reconstruct	0	0	5	10	0	0	0	1	0	0	0
Stringtown Road	Diamond Ave to Mill Rd	Reconstruct	1	3	9	143	0	2	1	1	0	0	0
Telephone Road	Bell Rd to Fuquay Rd	Widen from 2 to 3 lanes											
Vann Road	Epworth Rd to Libbert Rd	New Road	0	0	0	0	0	0	0	0	0	0	0
Vann Road	Libbert Rd to Bell Rd	Widen	0	0	0	1	0	0	0	1	0	0	0
Virginia Street	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	0	0	0	1	0	0	0	0	0	0	0
Vogel Road	E of Hirschland Rd to Cross Pointe Blvd	New Road (3 lanes)	0	0	0	2	0	0	0	0	0	0	0
Vogel Road	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	0	1	0	6	0	0	0	0	0	0	0

Environmental Underway/Complete

Table A.7: Kentucky Infrastructure

Kentucky Infrastructure			Religious Facility	School	Cemetery	Hospital	Airport	Active Railroad
Road	Limits	Type						
I 69	KY 425 to I-69	Upgrade/New						
Atkinson Street	KY 136 to KY 812/Clay St	Reconstruct	1	1	0	0	0	11
City of Coydon Bypass	US 60 to US 60	New Road	1	0	2	0	0	0
KY 1539/Zion-Larue Road	KY 351 to Kimsey Ln	Reconstruct	0	1	0	0	0	0
KY 351/2nd Street/Zion Road	Elm St to Denise Dr	Reconstruct	8	5	3	0	0	14
KY 351/Zion Road	E of Adams Ln to Bishop Ln	Reconstruct	1	1	3	0	0	0
KY 416	US 41A to US 41	Reconstruct	0	0	4	0	0	1
KY 425/Henderson Bypass	US 60 to I-69	Widen from 2 to 4 lanes	1	1	0	0	0	2
North Elm Street	Watson Ln to 12th St	Reconstruct	3	0	0	1	0	0
Old Corydon Road	US 60 to SR 425	Reconstruct	0	0	0	0	0	2
South Main Street	Drury Ln to Yeaman Ave	Reconstruct	0	0	3	0	0	0
US 41/US 60 Interchange	US 41/US 60 Interchange	Reconstruct	2	0	1	1	0	0
US 60	KY 1078/Baskett Ln to Green River Rd	Reconstruct	1	1	4	0	0	1
US 60	KY 2183/Holloway-Rucker Rd to KY 1078/Baskett Ln	Reconstruct	1	1	2	0	0	0
US 60	Morris Dr to KY 2183/Holloway-Rucker Rd	Reconstruct	0	0	1	0	0	1
US 60	Waverly, KY to Corydon, KY	Reconstruct	0	0	2	0	0	0
US 60	Corydon to KY 425/Henderson Bypass	Reconstruct	1	2	1	0	0	0
Van Wyk Road	5th St to I-69 Exit	Reconstruct	0	1	0	0	0	11
Wathen Lane	US 60 to City Limit	Reconstruct						
Watson Lane	Stonegate Dr to Green River Rd	Reconstruct						
Watson Lane	Sunset Ln to Stonegate Dr	Reconstruct						

Resources:
Homeland Infrastructure Foundation-churches
USGS-school, cemetery, hopsital
Kentucky Georgraphy Network-Active Railroad

Environmental Underway/ Complete

Table A.8: Kentucky Mining & Mineral Resources

Kentucky Mining & Mineral Resources			Mine-Surface	Mine-Underground	Oil and Gas Wells
Road	Limits	Type			
I 69	KY 425 to I-69	Upgrade/New			
Atkinson Street	KY 136 to KY 812/Clay St	Reconstruct	N	N	1
City of Coydon Bypass	US 60 to US 60	New Road	N	Y	9
KY 1539/Zion-Larue Road	KY 351 to Kimsey Ln	Reconstruct	N	N	1
KY 351/2nd Street/Zion Road	Elm St to Denise Dr	Reconstruct	N	N	3
KY 351/Zion Road	E of Adams Ln to Bishop Ln	Reconstruct	N	N	2
KY 416	US 41A to US 41	Reconstruct	N	Y	188
KY 425/Henderson Bypass	US 60 to I-69	Widen from 2 to 4 lanes	N	Y	50
North Elm Street	Watson Ln to 12th St	Reconstruct	N	N	3
Old Corydon Road	US 60 to SR 425	Reconstruct	N	N	16
South Main Street	Drury Ln to Yeaman Ave	Reconstruct	N	N	8
US 41/US 60 Interchange	US 41/US 60 Interchange	Reconstruct	N	N	4
US 60	KY 1078/Baskett Ln to Green River Rd	Reconstruct	N	N	22
US 60	KY 2183/Holloway-Rucker Rd to KY 1078/Baskett Ln	Reconstruct	N	N	37
US 60	Morris Dr to KY 2183/Holloway-Rucker Rd	Reconstruct	N	N	33
US 60	Waverly, KY to Corydon, KY	Reconstruct	N	Y	14
US 60	Corydon to KY 425/Henderson Bypass	Reconstruct	N	Y	70
Van Wyk Road	5th St to I-69 Exit	Reconstruct	N	N	1
Wathen Lane	US 60 to City Limit	Reconstruct			
Watson Lane	Stonegate Dr to Green River Rd	Reconstruct			
Watson Lane	Sunset Ln to Stonegate Dr	Reconstruct			

Resources:
Kentucky Geography Network-mine-surface and mine-underground
Kentucky Geological Survey-oil and gas wells

Environmental
Underway/
Complete

Table A.9: Kentucky Hazardous Materials

Kentucky Hazardous Materials			Brownfields	Superfund
Road	**Limits**	**Type**		
I 69	KY 425 to I-69	Upgrade/New		
Atkinson Street	KY 136 to KY 812/Clay St	Reconstruct	0	0
City of Coydon Bypass	US 60 to US 60	New Road	0	0
KY 1539/Zion-Larue Road	KY 351 to Kimsey Ln	Reconstruct	0	0
KY 351/2nd Street/Zion Road	Elm St to Denise Dr	Reconstruct	1	1
KY 351/Zion Road	E of Adams Ln to Bishop Ln	Reconstruct	0	0
KY 416	US 41A to US 41	Reconstruct	0	0
KY 425/Henderson Bypass	US 60 to I-69	Widen from 2 to 4 lanes	0	0
North Elm Street	Watson Ln to 12th St	Reconstruct	0	1
Old Corydon Road	US 60 to SR 425	Reconstruct	0	0
South Main Street	Drury Ln to Yeaman Ave	Reconstruct	0	0
US 41/US 60 Interchange	US 41/US 60 Interchange	Reconstruct	0	0
US 60	KY 1078/Baskett Ln to Green River Rd	Reconstruct	0	0
US 60	KY 2183/Holloway-Rucker Rd to KY 1078/Baskett l	Reconstruct	0	0
US 60	Morris Dr to KY 2183/Holloway-Rucker Rd	Reconstruct	0	0
US 60	Waverly, KY to Corydon, KY	Reconstruct	0	0
US 60	Corydon to KY 425/Henderson Bypass	Reconstruct	0	0
Van Wyk Road	5th St to I-69 Exit	Reconstruct	0	0
Wathen Lane	US 60 to City Limit	Reconstruct		
Watson Lane	Stonegate Dr to Green River Rd	Reconstruct		
Watson Lane	Sunset Ln to Stonegate Dr	Reconstruct		

Reources: EPA Environmental Dataset Gateway

Environmental Underway/ Complete

Table A.10: Water and Ecological Resources

Kentucky Water Resources/Ecological Resources			Partially Within Floodplain-DFIRM	NHD-River/Stream	NHD-Canal/Ditch	NWI-Wetland	KYTC-2018 Known Indiana Bat Summer 1 Habitat	KYTC Senstive Water Area
Road	**Limits**	**Type**						
I 69	KY 425 to I-69	Upgrade/New						
Atkinson Street	KY 136 to KY 812/Clay St	Reconstruct	X	13	15	9		
City of Coydon Bypass	US 60 to US 60	New Road	X	22	2	60		
KY 1539/Zion-Larue Road	KY 351 to Kimsey Ln	Reconstruct	X	6	12	13	X	
KY 351/2nd Street/Zion Road	Elm St to Denise Dr	Reconstruct	X	14	38	27		
KY 351/Zion Road	E of Adams Ln to Bishop Ln	Reconstruct	X	2	17	31		
KY 416	US 41A to US 41	Reconstruct	X	106	1	158		
KY 425/Henderson Bypass	US 60 to I-69	Widen from 2 to 4 lanes	X	50	30	75		X
North Elm Street	Watson Ln to 12th St	Reconstruct	X	10	13	15	X	
Old Corydon Road	US 60 to SR 425	Reconstruct	X	15	12	25		
South Main Street	Drury Ln to Yeaman Ave	Reconstruct	X	16	3	12		
US 41/US 60 Interchange	US 41/US 60 Interchange	Reconstruct	X	2	17	12	X	
US 60	KY 1078/Baskett Ln to Green River Rd	Reconstruct	X	66	0	78	X	X
US 60	KY 2183/Holloway-Rucker Rd to KY 1078/Baskett Ln	Reconstruct	X	39	2	49	X	
US 60	Morris Dr to KY 2183/Holloway-Rucker Rd	Reconstruct	X	27	8	40	X	
US 60	Waverly, KY to Corydon, KY	Reconstruct	X	35	0	65		
US 60	Corydon to KY 425/Henderson Bypass	Reconstruct	X	61	16	104		
Van Wyk Road	5th St to I-69 Exit	Reconstruct	X	16	24	8		
Wathen Lane	US 60 to City Limit	Reconstruct						
Watson Lane	Stonegate Dr to Green River Rd	Reconstruct						
Watson Lane	Sunset Ln to Stonegate Dr	Reconstruct						

Resources:
FEMA-floodplain
USGS-NHD River/Stream and NHD Canal/Ditch
USFWS-NWI Wetlands

Environmental Underway/ Complete

Environmental Justice

According to the U. S. Environmental Protection Agency (EPA), environmental justice is defined as "the fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income and educational levels with respect to the development, implementation and enforcement of protective environmental laws, regulations and policies."

The MPO has identified EJ Population Areas based on census tracts with concentrations of underserved and disadvantaged populations. These areas are also used to determine if a plan and its projects may have a disproportionately high and/or adverse impact on specific areas.

The EJ Population Areas were developed based on 2016-2020 American Community Survey (ACS) data from the U.S. Census Bureau. Percentages for the following factors were gathered for all 89 census tracts in Henderson, Vanderburgh, and Warrick counties:

- individuals below poverty;
- individuals age 65 and older;
- minority (non-Hispanic) population;
- Hispanic population;
- individuals with limited English proficiency (speak English "less than very well");
- individuals with a disability; and
- households with no vehicles.

A 3-county regional percentage for each factor was determined, and this percentage is considered to be the EJ Population Threshold. If the percentage of a census tract for an individual factor exceeds the EJ Population Threshold in more than one factor, it is considered to be an EJ Population Area.

Tables A.11 and A.12 indicate if the projects fall within one of the identified EJ population areas.

Figure A.1: Environmental Justice Population Areas

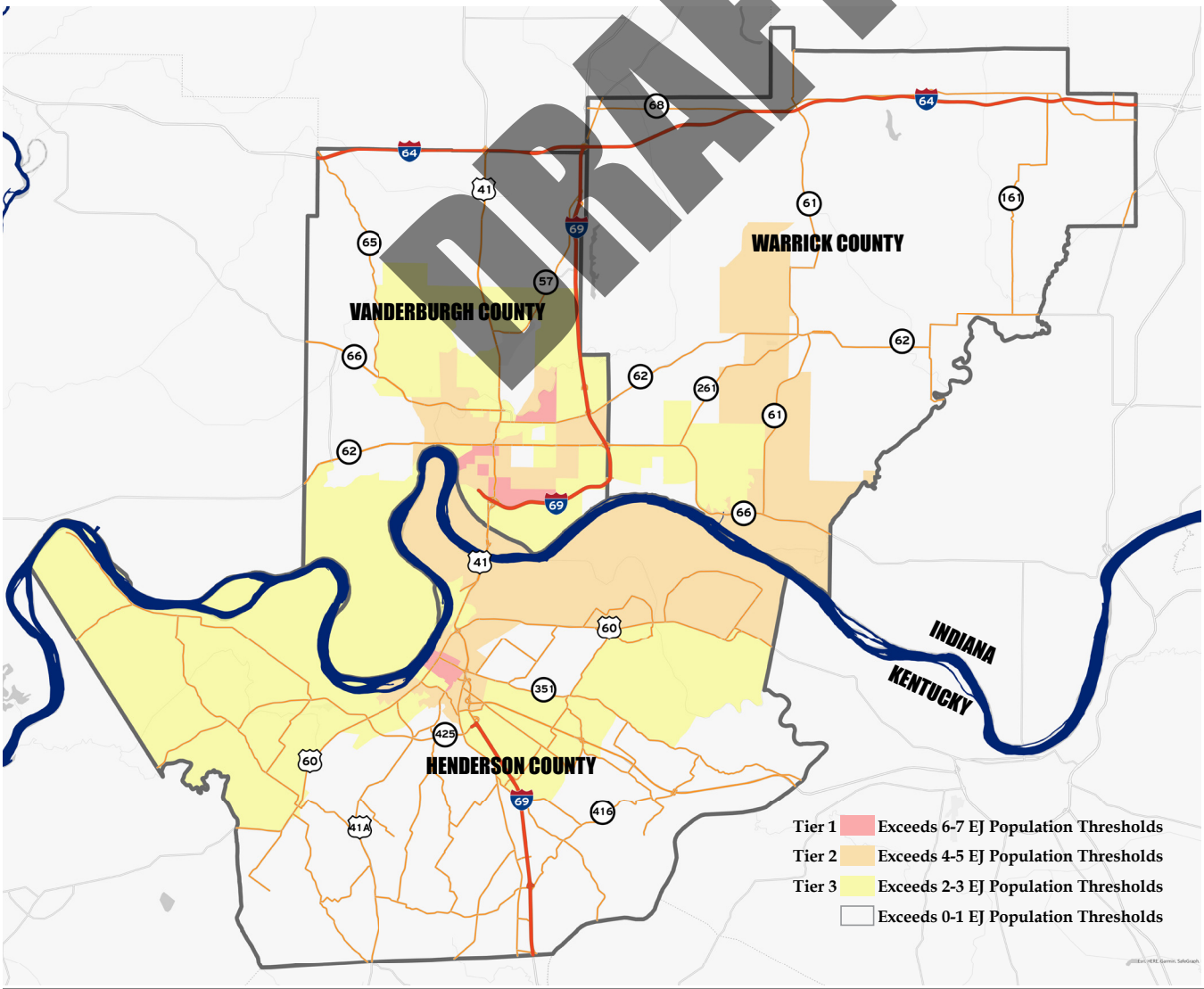


Table A.11: Indiana Environmental Justice

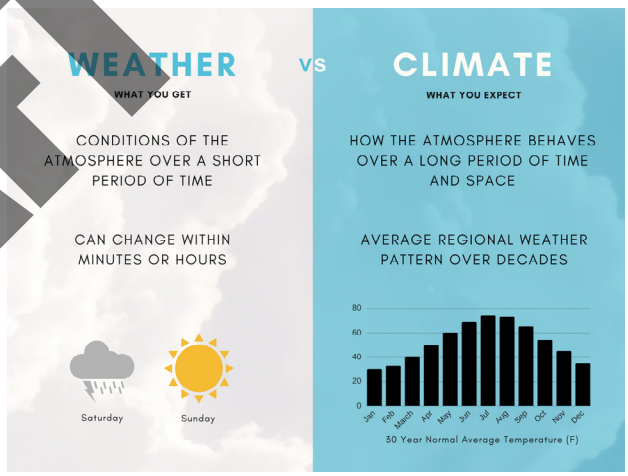
Environmental Justice			Poverty	Over 65	Minority	Hispanic	LEP	Disability	No Car
Road	**Limits**	**Type**							
I 69	KY 425 to I-69	Upgrade/New							
3rd Street	Court St to Parrett St	Reconstruct	X	X	X	X		X	X
Baseline Road	Husky Way to Old State Rd	Widen from 2 to 3 lane		X					
Boonville-New Harmony Road	Petersburg Rd to Green River Rd	Reconstruct							
Boonville-New Harmony Road	US 41 to Petersburg Rd	Reconstruct		X					
Broadway Avenue	City Limits to Barker Ave	Reconstruct	X	X				X	X
Burkhardt Road	Lincoln Ave to Lloyd Expy	Widen from 2 to 5 lanes		X	X	X	X		X
Casey Road	Vann Rd to SR 66	Widen from 2 to 3 lanes			X	X			
Claremont Avenue	Redbank Rd to Barker Ave	Reconstruct	X						
Columbia Street	E of Hirschland Rd to Cross Pointe Blvd	New Road (2 or 3 lanes)	X		X	X		X	X
Epworth Road	SR 662 to Lincoln Ave	Widen from 2 to 3 lanes		X		X			
Epworth Road	Lincoln Ave to S of SR 66	Widen from 2 to 5 lanes		X		X			
Kratzville Road	Diamond Ave to Darmstadt Rd	Reconstruct	X	X	X	X	X	X	X
Lenn Road	Lincoln Ave to Sharon Rd	Widen from 2 to 3 lanes		X		X		X	
Libbert Road	SR 66 to Oak Grove Road	Widen from 2 to 3 lanes		X					
Lincoln Ave	SR 66 to Anderson Rd	Widen from 2 to 3 lanes			X	X			
Lincoln Avenue	Green River Rd to Newburgh Rd	Widen from 2 to 3 lanes		X	X	X			X
Oak Grove Road	Burkhardt Rd to Cross Pointe Blvd	Widen from 2 to 5 lanes	X		X	X		X	X
Oak Grove Road	SR 261 to Anderson Rd	Widen from 2 to 3 lanes			X	X			
Oak Grove Road	Anderson Rd to Wethers Rd	Widen from 2 to 3 lanes		X	X	X	X		
Oak Hill Road	Lynch Rd to St. George Rd	Widen from 2 to 3 lanes		X	X	X	X		
Oak Hill Road	St George Rd to Eastwood Dr	Widen from 2 to 3 lanes		X	X	X	X		
Oak Hill Road	Eastwood Dr to Millersburg Rd	Widen from 2 to 3 lanes		X	X				
Petersburg Road	Boonville-New Harmony Rd to Kansas Rd	Reconstruct		X		X	X		
Red Bank Road	Broadway Ave to SR 62/ Lloyd Expy	Reconstruct	X				X		
Red Bank Road	N of SR 62/ Lloyd Expy to Upper Mount Vernon Rd	Reconstruct	X			X			
Roeder Road	Wethers Rd to Yankeetown Rd	Widen		X	X	X	X		
Schutte Road	SR 62/Lloyd Expy to Broadway Ave	Reconstruct		X			X	X	X
Stringtown Road	Diamond Ave to Mill Rd	Reconstruct	X	X	X	X		X	X
Telephone Road	Bell Rd to Fuquay Rd	Widen from 2 to 3 lanes		X	X	X	X		
Vann Road	Epworth Rd to Libbert Rd	New Road		X					
Vann Road	Libbert Rd to Bell Rd	Widen		X					
Virginia Street	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	X		X	X		X	X
Vogel Road	E of Hirschland Rd to Cross Pointe Blvd	New Road (3 lanes)	X		X	X		X	X
Vogel Road	Green River Rd to Burkhardt Rd	Widen from 2 to 3 lanes	X		X	X		X	X

Table A.12: Kentucky Environmental Justice

Environmental Justice									
Road	Limits	Type	Poverty	Over 65	Minority	Hispanic	LEP	Disability	No Car
I 69	KY 425 to I-69	Upgrade/New							
Atkinson Street	KY 136 to KY 812/Clay St	Reconstruct	X		X	X	X	X	X
City of Coydon Bypass	US 60 to US 60	New Road	X					X	
KY 1539/Zion-Larue Road	KY 351 to Kimsey Ln	Reconstruct	X	X				X	X
KY 351/2nd Street/Zion Road	Elm St to Denise Dr	Reconstruct	X	X	X	X	X	X	X
KY 351/Zion Road	E of Adams Ln to Bishop Ln	Reconstruct		X				X	
KY 416	US 41A to US 41	Reconstruct			X				
KY 425/Henderson Bypass	US 60 to I-69	Widen from 2 to 4 lanes	X	X	X			X	
North Elm Street	Watson Ln to 12th St	Reconstruct	X	X	X	X		X	X
Old Corydon Road	US 60 to SR 425	Reconstruct	X					X	
South Main Street	Drury Ln to Yeaman Ave	Reconstruct	X		X		X	X	X
US 41/US 60 Interchange	US 41/US 60 Interchange	Reconstruct	X	X				X	X
US 60	KY 1078/Baskett Ln to Green River Rd	Reconstruct	X	X	X	X		X	
US 60	KY 2183/Holloway-Rucker Rd to KY 1078/Baskett Ln	Reconstruct	X	X	X	X		X	
US 60	Morris Dr to KY 2183/Holloway-Rucker Rd	Reconstruct	X	X	X	X		X	
US 60	Waverly, KY to Corydon, KY	Reconstruct	X					X	
US 60	Corydon to KY 425/Henderson Bypass	Reconstruct	X					X	
Van Wyk Road	5th St to I-69 Exit	Reconstruct	X	X				X	X
Wathen Lane	US 60 to City Limit	Reconstruct	X	X	X	X		X	
Watson Lane	Stonegate Dr to Green River Rd	Reconstruct	X	X	X	X		X	
Watson Lane	Sunset Ln to Stonegate Dr	Reconstruct	X	X	X	X		X	

Climate trends summarize the long-term change in average weather patterns. These changes in trends can be caused by natural variability in climate as well as by human activities that release Greenhouse Gases (GHG), also known as heat-trapping-gases, to the atmosphere. Due to these changes, occurrences of extreme weather events are projected to increase in intensity and number. It's important to distinguish the difference between the terms weather and climate. Weather is the current state of the atmosphere such as temperature, wind, and amount of cloud cover. Weather is measured on a short-term time scale that can range from minutes to weeks. Climate is the long-term average of weather patterns such as temperature, humidity, and rainfall patterns. It may be helpful to think of the difference in what we wear to relate climate and weather. Weather influences what clothes you wear on a given day, while the climate where you live influences your entire wardrobe. Figure B.1 shows the comparison between weather and climate.

Figure B.1: Weather/Climate Comparison



Source: *https://www.nj.gov/dep/climatechange/basics.html*

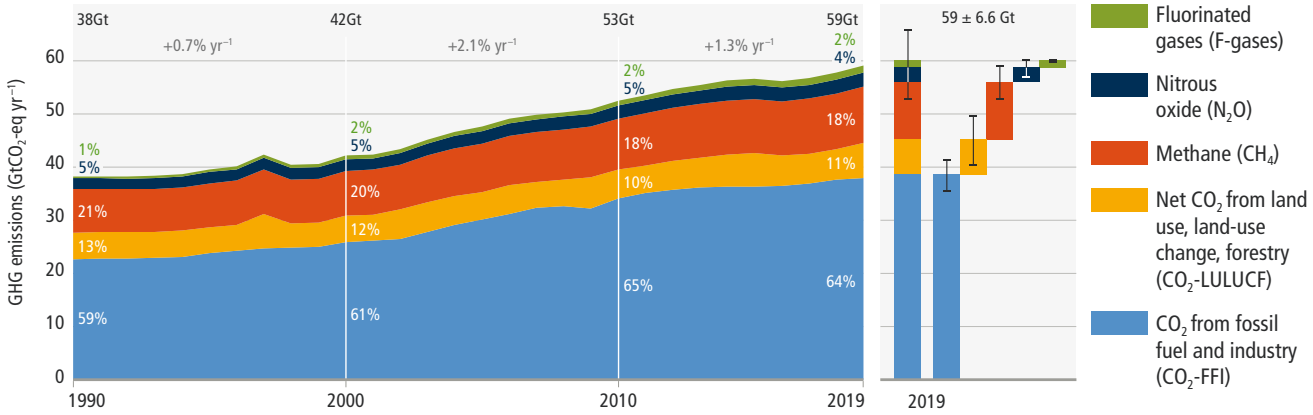
B CLIMATE TRENDS, SUSTAINABILITY, & RESILIENCY

According to the EPA, the Earth experiences natural cycles of warming and cooling, typically caused by the sun or volcanic activity. They also state that most of the warming that has occurred since 1950 has been caused by human induced activities. Since the beginning of the industrial revolution in the 1760s, the amount of fossil fuels burned has increased significantly over time. The burning of fossil fuels leads to increased Greenhouse Gases (GHG) in the atmosphere. Figure B.2 shows the global net anthropogenic GHG emissions between 1990 and 2019. According to NASA, the most common GHGs are carbon dioxide, methane, nitrous oxide, chlorofluorocarbons (CFCs), and water vapor. In 2019, approximately 34% of total net human induced GHG emissions came from the energy supply sector, 24% from industry, 22% from agriculture, forestry and other land use, 15% from transport, and 6% from buildings. GHGs are effective at trapping heat in the Earth's atmosphere. The GHGs emitted results in a warming or "greenhouse" effect on Earth, causing temperatures to rise. The Intergovernmental Panel on Climate Change (IPCC) concluded that it is indisputable that the increase of GHG in the atmosphere over the industrial era is the result of human activities and that human influence is the principal driver of many changes observed. In their sixth assessment report, they also state with high confidence that widespread, pervasive impacts to ecosystems, people, settlements, and infrastructure have resulted from observed increases in the frequency and intensity of climate and weather extremes, including hot extremes on land and in the ocean, heavy precipitation events, drought and fire weather.

Global Climate Trends and Projections

Human-induced activities are altering the planet's climate quicker than at any point in recorded history. Since the beginning of the industrial revolution, Earth's average yearly surface temperature has increased by 2°F. Figure B.3 shows the projected climate impacts at different warming temperatures. To individuals this may not feel like a big difference, but this is a significant increase in additional heat trapped by the atmosphere that has the potential for disruption of climates and global weather patterns. Earth's temperature has risen by 0.14°F per decade since 1880, but the rate of warming since 1981 is more than twice that at 0.32°F per decade. Nine of the ten warmest years on record occurred from 2013-2021. Figure B.4 shows the global temperature anomaly. Due to the warming temperatures, Artic sea ice is receding, wildfires are becoming more intense, sea levels are increasing, and extreme weather events are becoming more intense and common. The changing climate has contributed to the degradation of land due to more intense precipitation downpours, flooding, drought, heat spells, and wind. These extreme weather events have already cost the U.S. billions. As they intensify the cost of disaster relief will continue to increase. Figure B.5 shows the number of billion dollar weather/climate disasters that occured between 1980 and 2012. The effects of the changing climate have the potential to disrupt global climatic patterns and alter large- and small-scale weather patterns. Effects of the changing climate will be felt not only globally but also locally across nations, races, and socio-economic backgrounds.

Figure B.2: Global Net Anthropogenic GHG Emissions

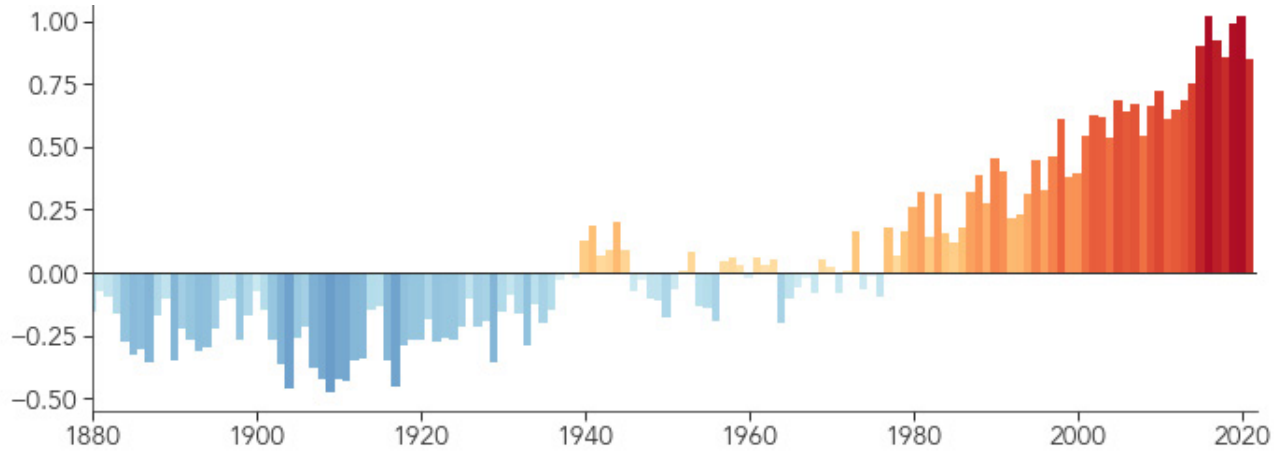


Source: *https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf*

Figure B.3: Impacts at an Increase of 1.5°C (+2.7°F) and 2°C (+3.6)

Source: *https://www.climatecouncil.org.au/resources/impacts-degrees-warming/*

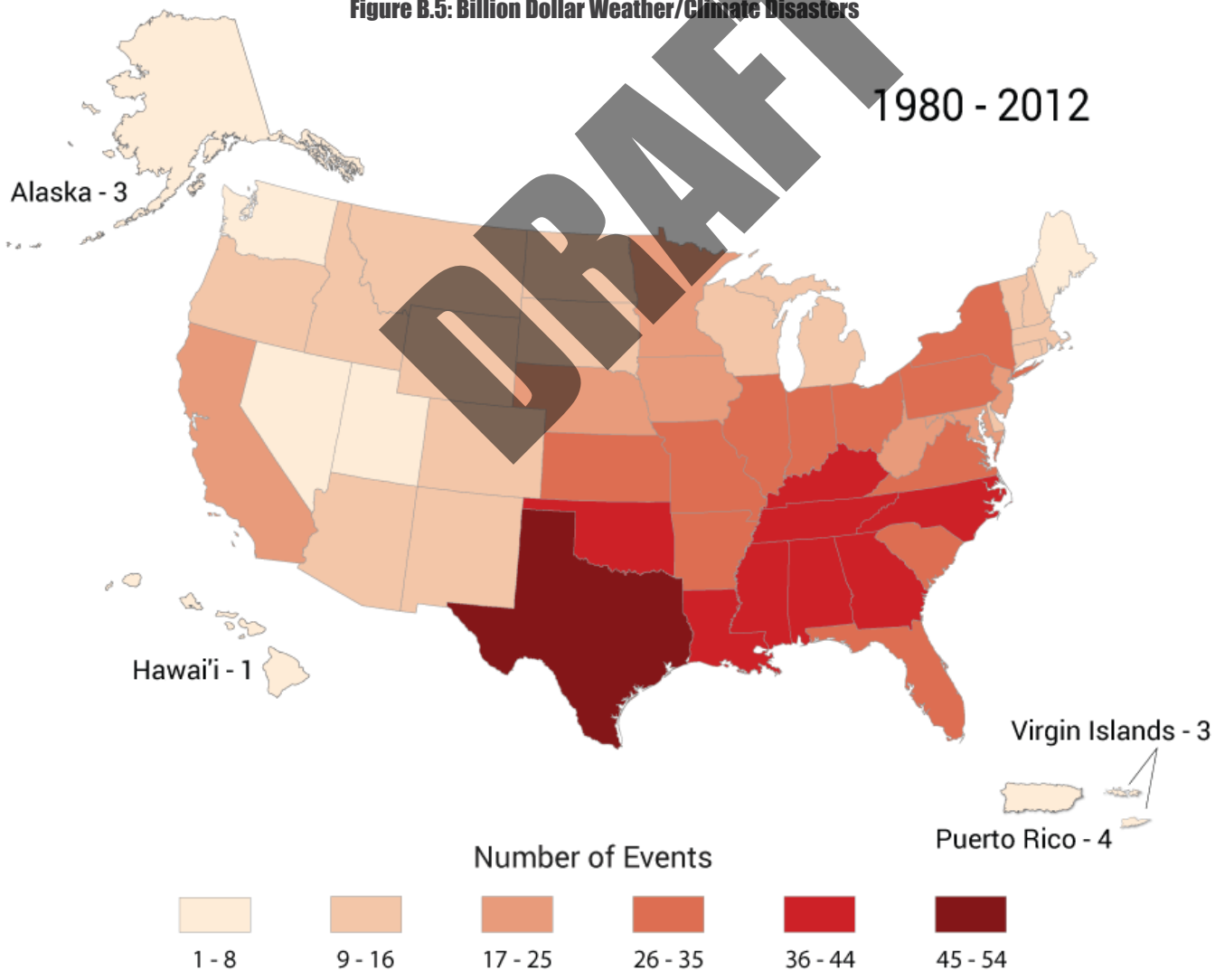
Figure B.4: Global Temperature Anomaly



2021 ties 2018 for Sixth Warmest Year on Record
Global Temperature Anomaly (°C compared to the 1951-1980 average)

Source: *https://earthobservatory.nasa.gov/images/149321/2021-continued-earths-warming-trend*

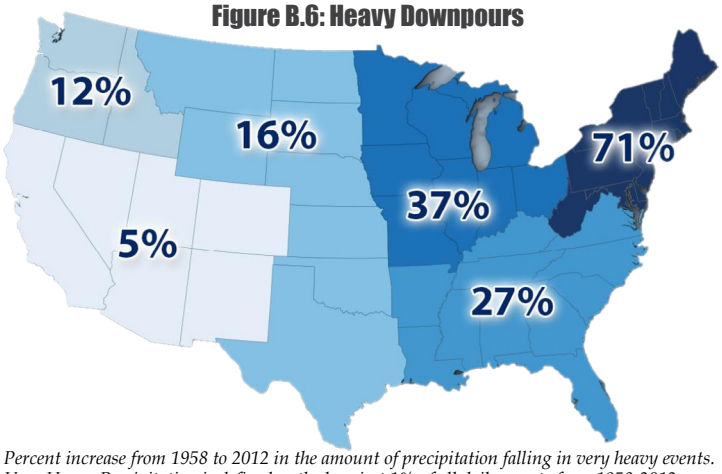
Figure B.5: Billion Dollar Weather/Climate Disasters



Source: *https://nca2014.globalchange.gov/report/regions/southeast#intro-section-2*

According to the IPCC's sixth assessment report, average global precipitation trends have changed, with an increase in precipitation over land since 1950. Since the 1980's the rate of increased precipitation has accelerated. Figure B.6 shows the percent increase of very heavy precipitation events. The frequency and intensity of heavy downpour events has risen since the 1950s. Projections show that heavy downpour events that normally occurred approximately once every 20 years are instead projected to occur every 5-15 years by the end of the century. Due to warming temperatures, agricultural and ecological droughts have increased in part to evaporation of moisture from soils. With projected higher average global surface temperatures and changes to precipitation regimes, the likelihood of more frequent and intense droughts is significant. Summer droughts are projected to become more intense and frequent in the U.S. due extreme heat and longer dry spells. The National Climate Assessment reports that both wet and dry extreme weather events are projected to increase significantly across the globe.

Figure B.6: Heavy Downpours



Percent increase from 1958 to 2012 in the amount of precipitation falling in very heavy events. Very Heavy Precipitation is defined as the heaviest 1% of all daily events from 1958-2012.

Source: *Kenneth Kunkel, Cooperative Institute for Climate and Satellites, North Carolina State University and NOAA N*

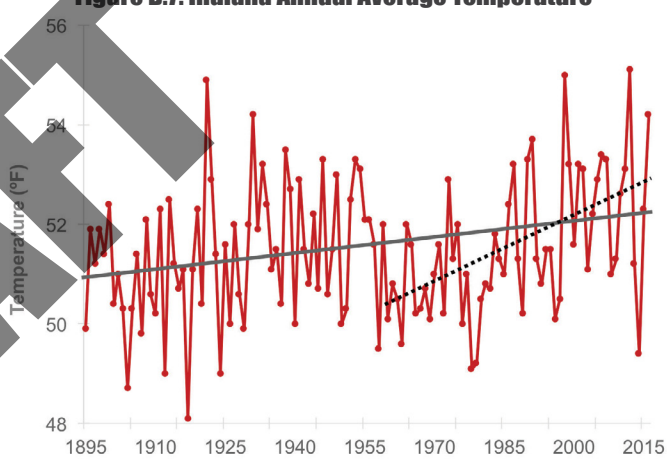
Evansville MPO Region Climate Regional Trends and Projections

The Evansville MPO region consists of counties in both Indiana (Vanderburgh, Warrick, and a small area of Eastern Posey County) and Kentucky (Henderson). Based on available data, projections show that the Evansville MPO region will generally follow the global climate trends and projections. Since climate is usually studied on wider scale, different data sources exist for each state. Each data source identifies their own threshold and range for the variables.

Indiana

According to *Indiana's Past & Future Climate: A Report from the Indiana Climate Change Impacts Assessment*, Indiana has warmed 1.2° F since 1895 and its projected that temperatures will rise by approximately 5-6° F total by the middle of the century (2050). Figure B.7 shows the annual average temperature in Indiana. By the mid-century southern Indiana will experience 38-51 extremely hot days per year (>95° F), which is an increase compared to the historic average of seven extremely hot days per year. Figure B.8 shows number of extreme heat days in Indiana. Higher temperatures, water use, and freshwater resource management

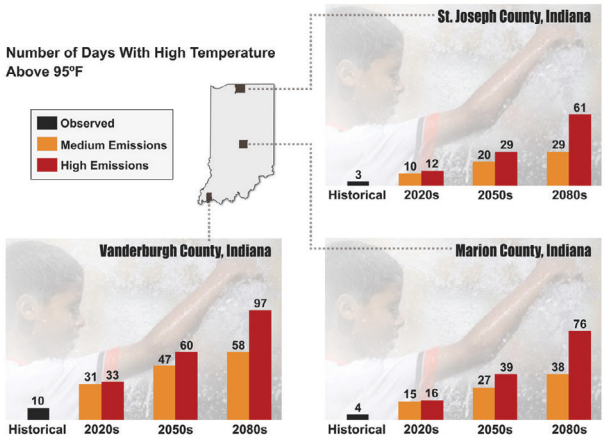
Figure B.7: Indiana Annual Average Temperature



Statewide annual average temperature for Indiana from 1895 to 2016 is shown in red. The black solid line shows the increasing trend in annual temperature (0.1°F/decade) for the period from 1895 to 2016. The black dotted line shows the temperature trend since 1960 (0.4°F"/decade).

Source: *https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1000&context=climatetr*

Figure B.8: Extreme Heat Days



Extreme heat days per year for three representative Indiana counties. "Historical" is the average for the period from 1915 to 2013. For future projections, "2020s" represents the average 30-year period from 2011 to 2040, "2050s" represents the average from 2041 to 2070, and "2080s" represents the average from 2070 to 2100.

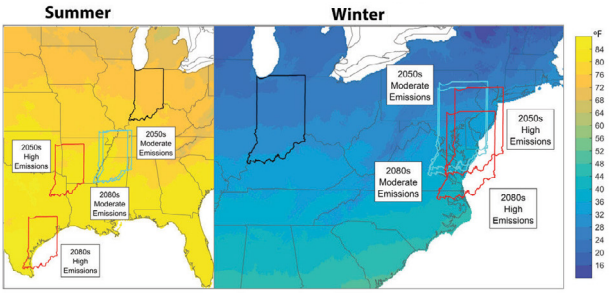
Source: *https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1000&context=climatetr*

can lead to an increase in drought conditions. Compared to the rest of the nation, Indiana ranks 35th for drought risk. NOAA anticipates temperature increases combined with an increase in evaporation rates may increase the intensity of naturally occurring droughts.

Humidity can also impact how higher temperatures are felt by communities and people. Using an index of heat stroke risk called the wet-bulb temperature (which combines air temp and humidity) the "real feel" of temperatures can be calculated. By mid-century, Indiana will experience wet bulb temps of 80-86°F for 10-30 days each year. This is an increase from 1-10 days per year from the years 1981-2010. Higher wet-bulb temperatures are considered dangerous and indicated that Indiana will experience wet bulb projections that are similar to the most humid and hot areas of Texas or Louisiana. Figure B.9 shows summer and winter climate estimations.

The annual average precipitation for the Indiana portion of the Evansville MPO area has increased 6.2 inches since 1895, as shown in Figure B.10, with more heavy downpour events occurring. Projections show an increase in precipitation during the winter and spring seasons, while precipitation projections for summer and fall are more uncertain. The frost-free season in Indiana has lengthened by 9 days annually since 1895, with a projected increase to 3-4 weeks of the frost-free season by the mid-century. Average annual precipitation has increased approximately 15% since 1895. The southern and western-central parts of Indiana have observed larger increases in precipitation compared to the rest of the state. Overall, the increased precipitation will most likely occur during the winter and spring months, as shown in Figure B.11. Projections show an increase in storms and storm intensity, and Indiana ranks 16th in the highest storm risk nationally.

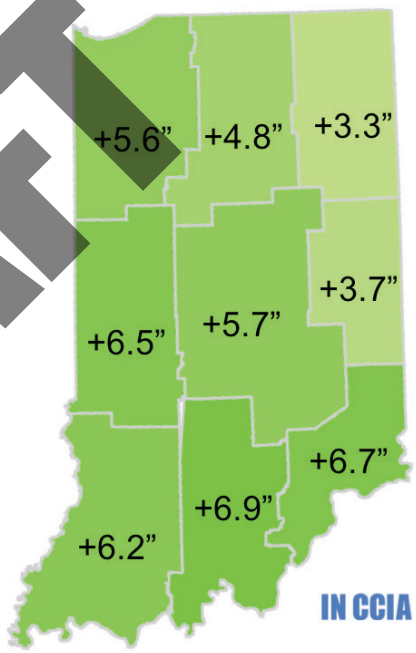
Figure B.9: Summer/Winter Estimated Climates



An illustration of what Indiana's summer and winter climates will feel like under future scenarios, as compared to today's climate in the United States. The colored Indiana outlines are centered over the regions with the most similar summer (left) and winter (right) climates to the projected future climate of Indiana for medium (blue outlines) and high (red outlines) emissions scenarios. Projections are based on statewide seasonal averages for temperature and precipitation. Underlying maps show current-day seasonal average temperatures based on data from PRISM.

Source: *https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1000&context=climatetr*

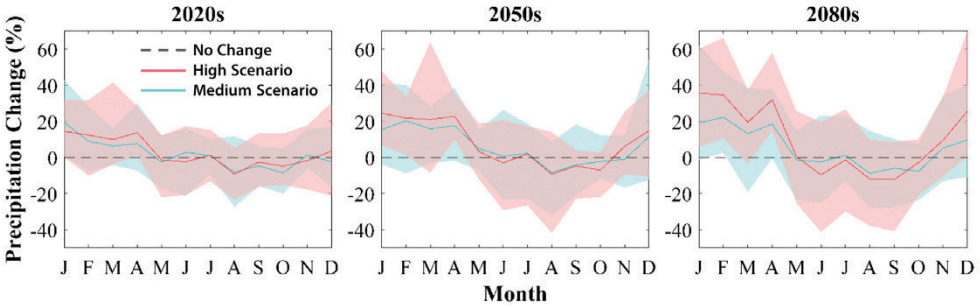
Figure B.10: Annual Average Precipitation



Change in annual average precipitation based on linear trend between 1895 to 2016

Source: *https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1000&context=climatetr*

Figure B.11: Projected Precipitation Changes



Projected changes in monthly average precipitation for Indiana for the 2020s (2011-2040), 2050s (2041-2070), and 2080s (2071-2100), relative to a 1971 to 2000 historical baseline. The solid red and blue lines show the 10-model average for the high and medium emissions scenarios, respectively. Shaded areas show the corresponding range of results across the 10 climate models.

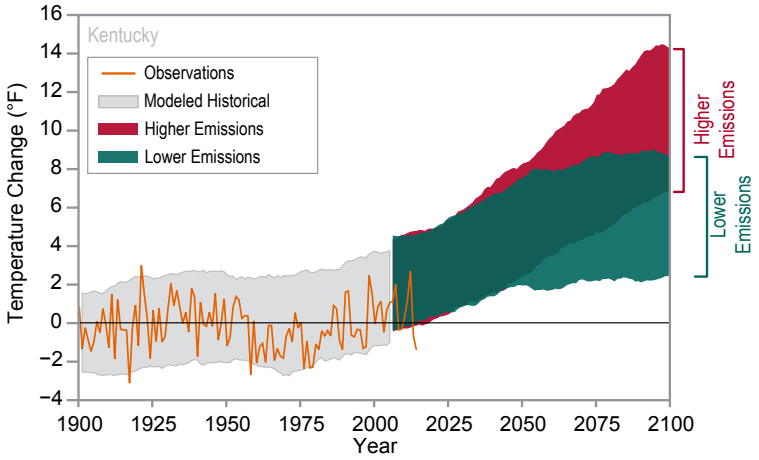
Source: *https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1000&context=climatetr*

Kentucky

Temperatures in the state of Kentucky have risen approximately 2°F since the 1960s. Overall, temperatures for summer and winter have been above the average since the 1990s. Figure B.12 shows the observed and projected temperature changes. With a high emissions pathway model, significant warming is projected by the end of the 21st century. Heat waves are projected to more intense, leading to the potential for more heat related illness and deaths. With higher temperatures, the likelihood of increased drought is more prominent. Compared nationally, Kentucky ranks 19th for drought risk. NOAA anticipates that increased temperature and higher evaporation rates will increase the intensity of naturally occurring droughts. Cold waves are projected to be less intense.

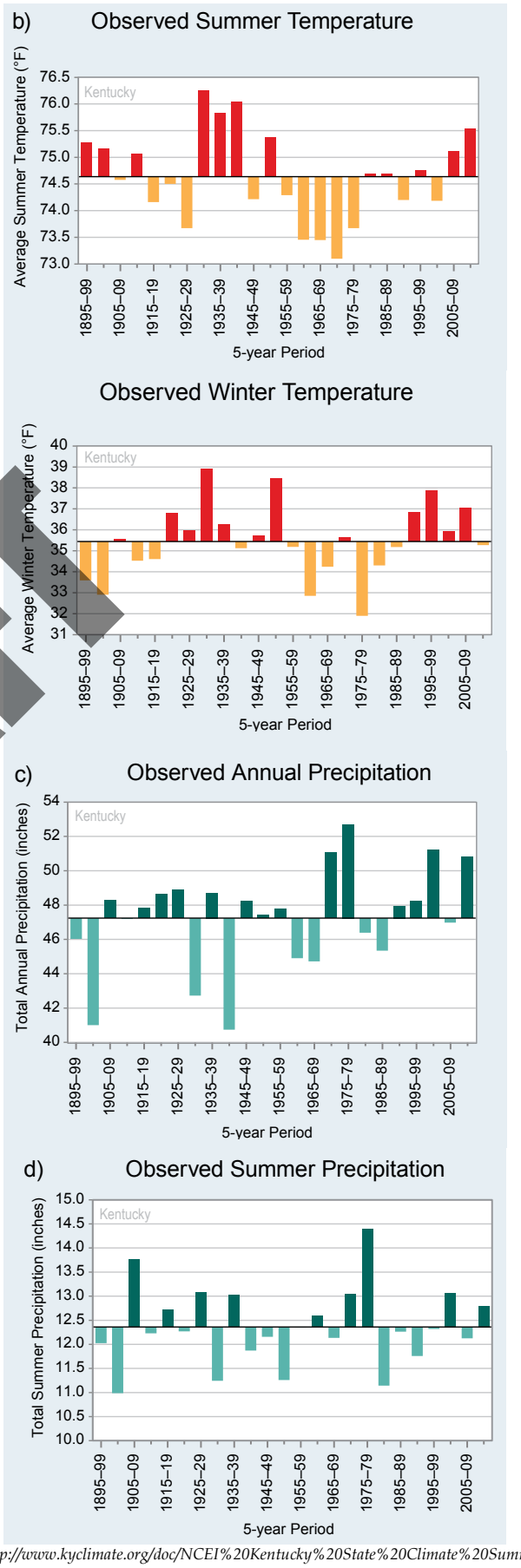
Precipitation during the spring and winter seasons is projected to increase by mid-century under a higher emissions pathway. Average annual precipitation has increased since the 2000s. Figure B.13 summarizes the observed temperature and precipitation. For the state, there has been an increase in the number of extreme precipitation events (events with > 2inches of precipitation). Kentucky has a fairly high amount of tornado-associated thunderstorm events annually with an average of about 21 tornadoes per year from 1991-2010. Projections show an increase in storms and storm intensity, and Kentucky ranks 8th in the highest storm risk nationally.

Figure B.12: Observed and Projected Temperature Change



Source: *http://www.kyclimate.org/doc/NCEI%20Kentucky%20State%20Climate%20Summary.pdf*

Figure B.13: Kentucky Observed Temperature/ Precipitation



Source: *http://www.kyclimate.org/doc/NCEI%20Kentucky%20State%20Climate%20Summary.pdf*

Climate Trends Risks Associated with the Evansville MPO Regional Transportation Infrastructure

Due to the changing climate, the Evansville MPO region will face a variety of risks and impacts, with some being more immediate and intense. Climate change is a complex and interconnected issue within many structures and systems, meaning that risks can be associated with multiple impacts such as excessive heat and increased precipitation. Increased, prolong temperatures can lead to the potential for rutting of roads, pathways, and sidewalks. Areas of high traffic volume combined with high temperatures can degrade the binding in concrete/cement and result in degradation of roadways and frequent and high maintenance costs. Projected increases in average and seasonal temperatures can lead to more intense and frequent heat advisories. This can affect outdoor workers, including road construction and maintenance crews, which can lead to timing and length of road construction/maintenance timelines. Higher temperatures can lead to increased stressors on transportation vehicles, roads, railways, and bridges. More pressure on the electrical grid due to increased temperatures can lead to failure and outages to utility services further impacting communities. This combination of impacts can potentially lead to disruptions in supply chains, increased repair and maintenance costs, and heat related injury/illness.

Increased average annual precipitation in the region can lead to degradation of roads, pathways, and sidewalks as well as washout of these structures. Flooding events can block roads and pathways leading to delays, forcing motorists to take alternative routes. Along with delays, disruption, and degradation of road/pathways, flooding can cut off routes and potentially lead to injury and/or illness from exposure to flood water and the after effects. An increase in extreme weather events such as tornadoes, flooding, and drought can elevate the potential for loss of life, injury, and higher infrastructure maintenance and repair costs. Heavy downpour events are projected to increase furthering the risk for urban and riverine flooding. Low lying areas with few flooding protections such as pervious surfaces, levees, and other flood mitigation strategies are at risk for property damage and destruction.

Source: *https://www.courierpress.com/story/news/local/2021/03/02/evansville-flood-warning-issued-ohio-river-set-overflow-friday/6890290002/*

Existing Evansville MPO Policies that Promote Sustainability and Resiliency

Several recent and current projects show the Evansville MPO's commitment to prioritize projects that help reduce carbon emissions. The Evansville MPO recently coordinated with INDOT to help fund the US 41 and Lloyd Expressway corridor studies that led to several intersection improvements and traffic signal improvements that have improved traffic flow. In Henderson County, the Evansville MPO is coordinating with KYTC on the Watson Lane Project that will help reduce congestion and promote walking by incorporating sidewalks into the design.

The Evansville MPO has also adopted a Complete Streets Policy that supports the creation of a multimodal transportation system that ensures accessibility to all roadway users. Implementing the complete streets policy has already indirectly encouraged the use of alternative transportation such as walking, cycling, and transit by ensuring more safe routes for the user and creating a comprehensive, integrated, and connected transportation network that supports compact, sustainable development, and provides livable communities. Promoting the use of alternative transportation will help vehicle miles traveled and reduce carbon emissions. The Evansville MPO in coordination with the City of Evansville have already completed road diet projects that incorporate the complete streets policy at Covert Avenue, Lincoln Avenue, Walnut Street, and Weinbach Avenue. Warrick County has incorporated sidewalks and bike lanes in several recent projects that the Evansville MPO prioritized.

As more data becomes available, policies will be reviewed and any areas of opportunity for enhancement of sustainability and resiliency will be coordinated with the technical and policy committees.

Source: *Evansville MPO*

Adaptive Strategies, Risk Reduction, Mitigation Methods, and Resiliency

Strategies for addressing risk and adaptive capacity in infrastructure and transit vary between physical actions and planning/policy actions. It will also be critical for the Evansville MPO to continue prioritizing projects that help reduce future carbon emissions. Some of the strategies will overlap due to the complexity, requirements, and regulations of projects. Table B.1 outlines the climate trend variables, impact of the variable, the assets that are anticipated to potentially be impacted, the anticipated impacts, and the risk reductions and mitigation methods proposed. The Evansville MPO, in coordination with the technical and policy committees, will review this list and additional resources to develop a plan to incorporate sustainability and resiliency within the overall planning process.

Planning with a focus on sustainability and resilience will give agencies and communities the ability to adapt and rebound quickly and effectively after a shock or stressor, such as a flooding event. Utilizing future climate projections during design to adequately size structures and stormwater systems for peak flow, and design the structure supports to manage the expansion in bridge supports and pavement will make our regional transportation system more resilient. Encouraging the use of durable construction materials would help ensure resiliency and reduce the amount of waste and maintenance cost due to longer asset lifespans. I*ncorporating Resilience into Transportation Planning and Assessment* prepared for the Transportation Research Board utilized the absorptive capacity, restorative capacity, equitable access, and adaptive capacity (AREA) strategy. This strategy focuses on the criticality and exposure of various assets of a transportation/infrastructure network. By implementing the AREA strategy, agencies better have the opportunity to identify difference scenarios and strategies that can be used by planners to develop a more resilient transportation system. Resilience is not only important within just infrastructure and transportation systems. Supporting and empowering communities to become more sustainable and resilient will help further the success of Evansville MPO goals.

Moving forward the Evansville MPO plans to support the creation of inventory plans and policies to help supplement, maintain, and update data on critical transportation and infrastructure assets. Information such as surface temperatures in urban areas during heat waves, temperature of pavement and roadways, structure condition and required maintenance, and flooding location data would help in creating a robust, useful dataset. This data would enable the Evansville MPO to develop a vulnerability assessment for the area. A vulnerability assessment would help identify areas of infrastructure and transportation systems that are vulnerable to climate and weather impacts. By understanding where the region is vulnerable from an infrastructure and transportation standpoint, agencies can address those issues and help recommend and implement improvements for a more resilient and sustainable region. The Evansville MPO will also reference the available county-specific Multi-Hazard Mitigation Plans during the vulnerability assessment planning process. Stakeholders that would potentially be involved in the development of the vulnerability assessment are listed in Table B.2.

Laying the framework for a vulnerability assessment will include collecting supplemental data on infrastructure. Following the Federal Highway Administration's (FHWA) recommendations and tools on conducting an infrastructure vulnerability assessment, the Evansville MPO can better understand and address critical and vulnerable areas in the region. Using the tools and recommendations from the FHWA in conjunction with other climate and transposition evaluation tools will allow the Evansville MPO to have a specialized format for addressing vulnerability in the area. Updates and reviews of the vulnerability assessment should be made as new data, tools, and information is updated.

Table B.1: Anticipated Asset Impacts and Mitigation Methods for Climate Trends

Climate Trend Variables	Impact of Climate Trends Variables	Assets Affected	Anticipated Impacts	Risk reductions and Mitigation Methods
Extreme Precipitation Events	• increased intensity and amount of rainfall • increased stormwater runoff • increase flooding	• culverts/drainage pipes • stormwater drainage facilities • roads • bridges • pathways • sidewalks • construction and maintenance activities	• increase in culvert damage due to washouts • increase in road/ bridge repair • bridge scouring • road bank and bridge bank stabilization • may cause delays for construction/ maintenance activities • road closures due to flooding	• use future climate projections to adequately size bridges/culverts for future peak flow • incorporate green infrastructure for stormwater such as rain gardens, urban forest, vegetated swales, and vegetated filter strips during design • promote and encourage the use of rain barrels/cisterns • update design specifications for pavement due to rainfall intensity • utilize permeable pavements • evaluate the use of curb and gutters • develop a strategy to map areas prone to stormwater flooding and a strategy to address any existing problem areas and monitor for future issues • support design policies that require 1% of stormwater runoff generated by new development to be detained for at least 24 hours

Table B.1: Anticipated Asset Impacts and Mitigation Methods for Climate Trends (Cont.)

Climate Trend Variables	Impact of Climate Trends Variables	Assets Affected	Anticipated Impacts	Risk reductions and Mitigation Methods
Increased temperatures	• increased average temperature • more frequent heat waves	• roads • bridges • pathways • sidewalks • electric boxes • construction and maintenance activities	• pavement may rut/ buckle • can cause pavement to soften and expand which can increase pot holes and place additional stress on bridge joints. • longer growing season will increase the cost of maintenance • may cause delays for construction/ maintenance activities due to worker exposure to heat or temperature spec restrictions on materials used • may decrease the cost of snow/ice removal	• use future climate projections to adequately design the structure supports to manage the expansion in the bridge supports and pavement • utilize higher albedo materials to reflect sunlight and reduce heat intake • promote anti-idle programs • plant green space such as rain gardens/urban forest • utilize permeable pavements • utilizing cool pavement coatings and techniques • utilizing grass pavers • encourage the Installation of solar panels at bus stops and METS/HART/ WATS managed buildings • place temperature monitors on METS/ HART/WATS buses to help identify any hot spots
Increased droughts	• more frequent droughts that last longer	• roads • bridges • pathways • sidewalks	• land subsidence exacerbation due to shrink swell periods will increase damage to structures due to land erosion and shifts in the soil/ foundations	• Support a routine culvert/bridge maintenance program that includes identifying, monitoring, and maintaining any problem areas • Promote incorporating a level of flexibility in design specs to utilize sustainable construction materials. • incorporate pavement materials that are more durable under higher temperatures

Table B.2: Potential Stakeholders for Vulnerability Study

Evansville **MPO staff/employees**	**County engineers**	**City engineers**
Public transit staff (METS, HART, WATS)	**Economic development groups and agencies**	**City mayors**
Area plan commission	**Farmers and agricultural interests**	**City councils**
Commissioners	**Financial officers (city and county)**	**Wastewater department**
EMA staff/employees	**Schools/universities**	**General public (CAC)**
Local EPA*	**Urban forestry department***	**State climatologists***

May be contacted for data and involvement

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The Congestion Management Process (CMP) is a plan for recommending and implementing appropriate strategies that can alleviate congestion and improve the performance of the transportation system. This CMP establishes a consistent and systematic process for managing congestion by producing information and recommendations on system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods. This is done with Federal and State guidance for the intended purpose of conforming to Federal air quality standards. Achieving regional air quality improvements are a potential and desired outcome of CMP planning.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 was the first Federal transportation Act to require the establishment of a Congestion Management System in Transportation Management Areas (TMAs), which are urbanized areas with a population over 200,000. Subsequent Acts, including TEA-21, SAFETEA-LU, MAP-21, the FAST Act and now the IIJA, have all maintained the Congestion Management requirements for TMAs.

In TMAs designated as carbon monoxide (CO) or ground-level ozone (O3) non-attainment areas, the Federal regulation prohibits projects that increase capacity for single-occupant vehicles (SOVs), unless the project emerges from a CMP. At present the Evansville MPO study area is in attainment for CO, and ozone, both of which are considered transportation-related pollutants and that being the case, a CMP analysis is not required for transportation projects. The CMP is nonetheless, a required planning process, and the Evansville MPO will be engaged in CMP activities on a regular basis.

Formerly, the CMP was known as the Congestion Management System (CMS), and the CMS was presented as a stand-alone document (Congestion Management System Report, July 2004). SAFETEA-LU changed the name, and required the inclusion of the CMP within the Metropolitan Transportation Plan. The IIJA continues these requirements. The Evansville MPO revised the Congestion Management Process, and implemented a new data collection program, in 2009 to better monitor major corridors for delay and operational shortcomings. This data collection program, as well as performance measures and strategies for reducing congestion, are discussed in this appendix.

C CONGESTION MANAGEMENT PROCESS

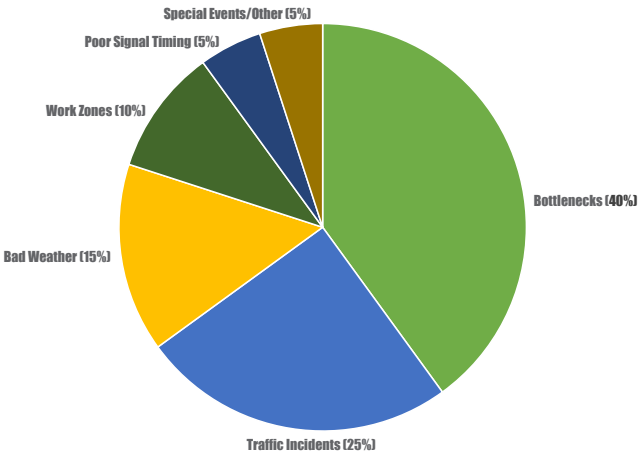
Managing Congestion

Congestion has been defined by the Federal Highway Administration (FHWA) as "The level at which transportation system performance is no longer acceptable due to traffic interference." The level of acceptable system performance varies by type of transportation facility, geographic location, and/or time of day. In the National Strategy to Reduce Congestion on America's Transportation Network (US Dept. of Transportation, 2006), the US DOT states that "Based on current trends, highway congestion is on its way towards becoming a problem in medium-sized cities within the next ten years, while smaller cities, towns, and the suburban and rural fringe can expect to face similar challenges over the next 10 to 15 years."

The Transportation Research Board (TRB) has identified two types of congestion, as it relates to travel time and speed. The first and most dominant cause of congestion is recurrent congestion caused by inadequate road capacity. This simply means that there are more vehicles trying to utilize a roadway than it can physically accommodate at a single time. Historically, solutions for this type of congestion have focused on building new roads or adding travel lanes to existing roadways.

The second type of congestion results from random events such as accidents, spills, vehicle breakdowns, inclement weather, special events or any other factor that cannot be anticipated on a typical day of travel. This type of congestion is called non-recurrent congestion because it is largely unpredictable as to when or where it will occur. It is estimated that the majority of traffic congestion is caused from non-recurrent incidents in an urban area. Figure C.1 shows the factors of congestion.

Figure C.1: Factors of Congestion



Source: FHWA http://ops.fhwa.dot.gov/publications/fhwahop11034/ch1.htm

When they occur during rush hours they cause congestion. Incident Management, which is a sequence of pre-planned and integrated activities that applies both human and technological resources to remove incidents as quickly and safely as possible to restore capacity to the highway, is a unique solution to non-recurrent congestion incidents.

A successful congestion management program should address both recurrent and non-recurrent congestion. Both types of congestion can be difficult to mitigate without reducing overall travel demand. For capacity expansion to occur there must be sufficient right-of-way available for expansion or funds available to acquire the addition right-of-way needed to build a new road or add travel lanes. Often right-of-way is difficult to acquire and costs can be prohibitive for smaller roadway projects.

Sometimes minimal or temporary relief can be provided through highway performance improvements such as traffic signal synchronization, traffic signal modernization, improved roadway signs and pavement markings and other low-cost remedies. However, these improvements are often temporary and only serve to prolong the problem without actually fixing anything. Otherwise, meaningful reductions in congestion can only be accomplished with non-capacity expansion strategies, which are discussed in more detail in the following section.

The Evansville MPO's CMP includes the eight elements of CMP discussed in the new CMP guidance document published by the FHWA. Figure C.2 shows the elements of the Evansville MPO's CMP.

Figure C.2: Elements of Congestion Management Process

Source: https://www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/fig1.cfm

Regional Objectives

Regional CMP goals and objectives are developed to support the regional goals and objectives adopted in the MTP 2050. The regional goals and objectives for the MTP 2050 were developed through an extensive planning process discussed in detail in Chapter 5 of the MTP 2050. Specific, Measurable, Realistic, and Time bound (SMART) objectives are listed below.

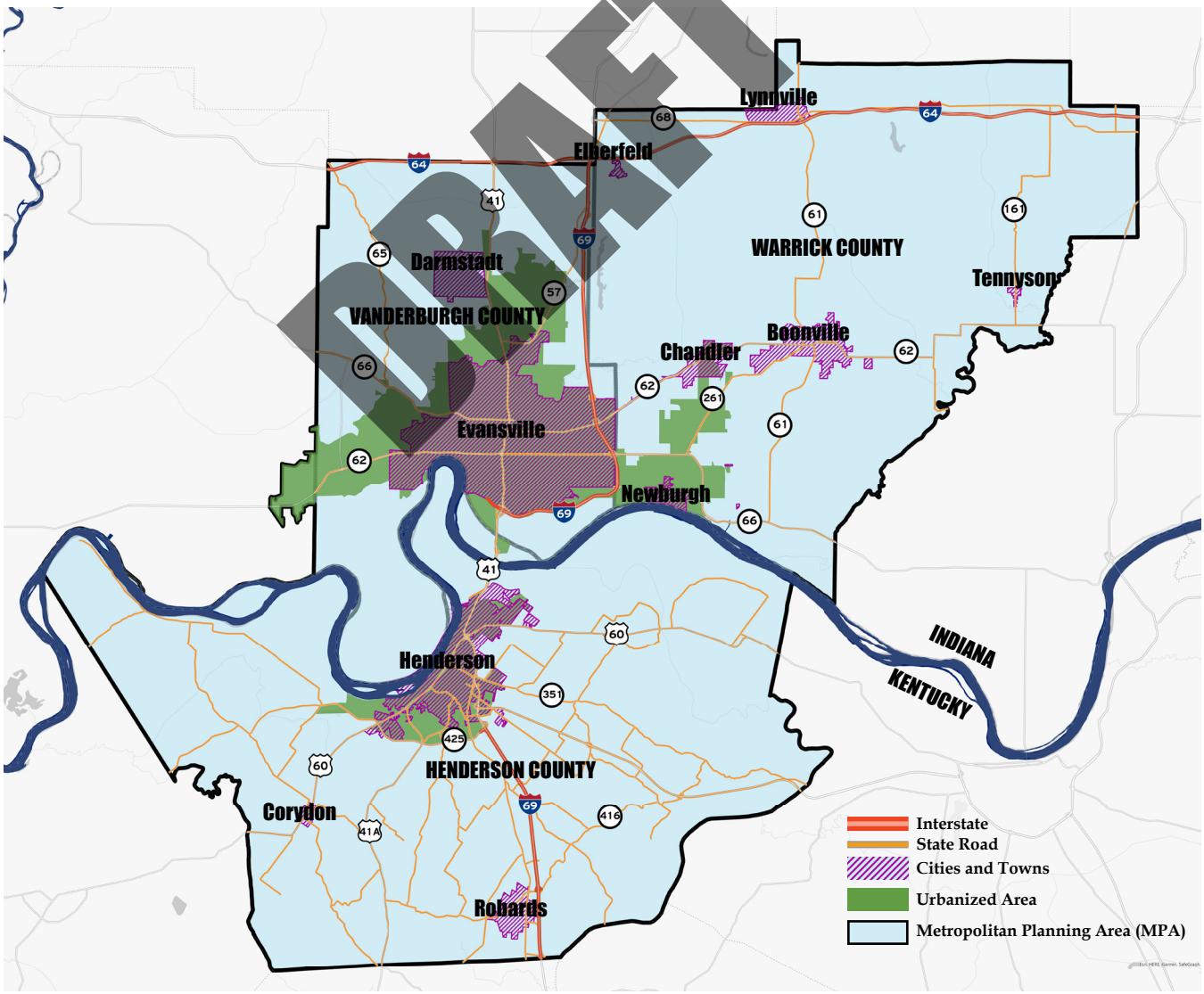
Objectives:

- Reduce travel times on CMP network by 2% by 2050
- Reduce average delay on CMP network corridors by 2% by 2050
- Maintain CMP corridors with no/low congestion

CMP Network

The CMP is applied to the Evansville MPO Transportation Management Area (TMA) which contains approximately 650 square miles in Indiana, including the City of Evansville, Vanderburgh County, Warrick County, and a very small area of eastern Posey County. In Kentucky, the Study Area encompasses approximately 440 square miles which includes the City of Henderson and Henderson County. Figure C.3 shows the Evansville MPA, including the Urbanized Area.

Figure C.3: Evansville MPO Metropolitan Planning Area and Urbanized Area



Transportation System

The transportation system consists of the modes and network to transport people and goods. A general CMP network may include all modes of transportation, such as walk, bike, transit, and motor vehicles. At this point in time, the Evansville MPO's CMP focuses on addressing motor vehicle congestion mitigation strategies for major corridors. This is accomplished by collecting performance measurement data, monitoring congestion conditions, and implementing CMP strategies. However, the CMP does promote other modes that help mitigate congestion problems, such as transit, pedestrian, bicycle, carpool, and vanpool modes of transportation. The promotion of these modes is considered an on-going and effective congestion mitigation strategy.

Various definitions of congestion have been proposed. The Interim Final Rule on Management and Monitoring Systems in ISTEA of 1991 by the Federal Highway Administration (FHWA) defines congestion as "the level at which the transportation system performance is no longer acceptable due to traffic interference. The level of acceptable system performance may vary by type of transportation facility, geographic location, and/or time of day." The Transportation Research Board (TRB) defines that "congestion is travel time or delay in excess of that normally incurred under light or free-flow travel conditions."

The current CMP network includes 25 corridors within the MPO area. The CMP network corridors are shown in Figure C.4 and listed in Table C.1.

Figure C.4: Evansville TMA CMP Travel Time Study Corridors

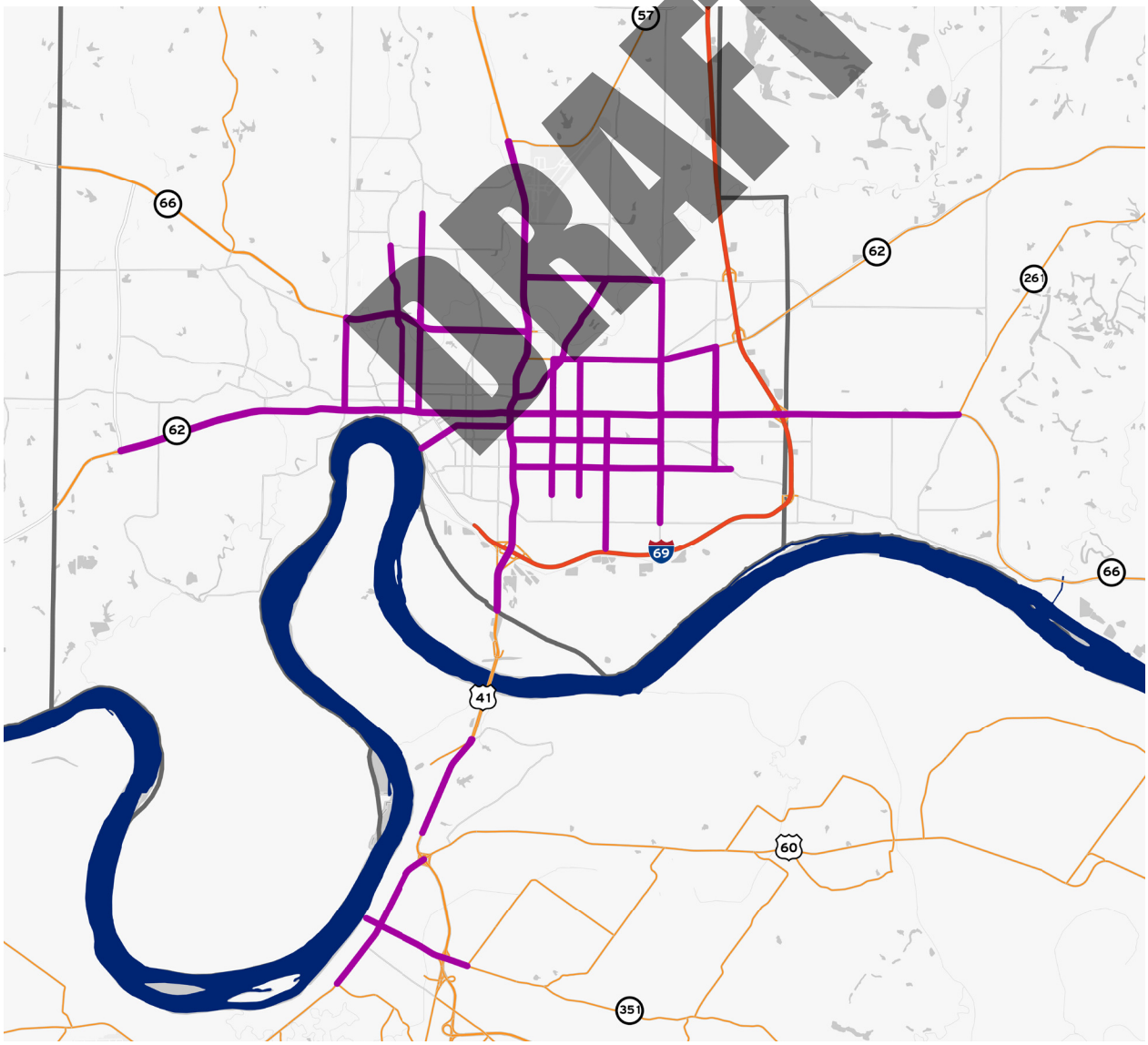


Table C.1: CMP Travel Time Survey Corridors

Number	County	Road	From	To	Length (mi)
1	Henderson	US 60	US 41	Sand Ln	3.6
2	Henderson	US 41	Wolf Hills Rd	Barret Blvd	1.9
3	Henderson	2nd St	Water St	Garden Mile Rd	2.16
4	Vanderburgh	Boeke Ave	SR 62/Morgan Ave	Covert Ave	2.52
5	Vanderburgh	Weinbach Ave	SR 62/Morgan Ave	Covert Ave	2.51
6	Vanderburgh	Vann Ave	SR 66/Lloyd Expy	Rheinhardt Ave	2.53
7	Vanderburgh	Washington Ave	US 41	Newburgh Rd	4.04
8	Vanderburgh	St. Joseph Ave	SR 62/Lloyd Expy	SR 66/Diamond Ave	1.72
9	Vanderburgh	SR 66/Lloyd Expy	I 69	US 41	5.14
10	Vanderburgh	SR 62/Lloyd Expy	US 41	St. Joseph Ave	3.15
11	Vanderburgh	SR 62/Lloyd Expy	St. Joseph Ave	University Pkwy	4.4
12	Vanderburgh	US 41	SR 62/Lloyd Expy	KY State Line	3.68
13	Vanderburgh	US 41	SR 62/Lloyd Expy	SR 57	5.19
14	Vanderburgh	1st Ave	SR 62/Lloyd Expy	Old Post Rd	3.71
15	Vanderburgh	Fulton Ave	SR 62/Lloyd Expy	Mill Rd	3.08
16	Vanderburgh	SR 66/Diamond Ave	US 41	St. Joseph Ave	3.52
17	Vanderburgh	Burkhardt Rd	Washington Ave	SR 62/Morgan Ave	2.27
18	Vanderburgh	Green River Rd	SR 66/Lloyd Expy	Lynch Rd	2.5
19	Vanderburgh	Green River Rd	SR 66/Lloyd Expy	Pollack Ave	2.01
20	Vanderburgh	Lincoln Ave	US 41	Green River Rd	2.79
21	Vanderburgh	Walnut St	US 41	Riverside Dr	1.76
22	Vanderburgh	SR 62/Morgan Ave	Weinbach Ave	Burkhardt Rd	3.1
23	Vanderburgh	Lynch Rd	US 41	Green River Rd	2.6
24	Vanderburgh	Oak Hill Rd	US 41	Lynch Rd	2.9
25	Warrick	SR 66	I 69	SR 261	3.33

The CMP is a continuous cycle of transportation planning activities, designed to provide decision-makers with valuable information about transportation system performance and the effectiveness of alternative strategies to deal with congestion. The CMP is not a one-time exercise but an ongoing process of planning, action and review. By monitoring the effectiveness of congestion mitigation strategies and evaluating their benefits in an orderly and consistent manner, planners and stakeholders can improve the ability to select the most cost-effective strategies appropriate to specific local conditions and needs.

Performance Measures

Performance measures are the specific, measurable attributes of performance that are used to assess possible implementation strategies. They can be monitored and tracked to report progress toward a goal.

Performance measures are at the core of the CMP and are parameters to measure the level of congestion, identify the locations, and indicate the extent of congestion on the region's transportation system. This leads to specific requirements for data collection, analysis, and monitoring. The information may be used to track changes in mobility/congestion over time, identify subareas or corridors with mobility problems, and identify causes of congestion.

Evansville MPO selected the following performance measures to gauge the level of congestion on the arterial corridors:

- Travel Time Index (TTI)
- Volume-to-Capacity Ratio (V/C)

Travel Time Index (TTI)

The Travel Time Index is the ratio of the peak-period travel time to the free-flow travel time, along the same routes. The free-flow travel time is the time used to travel in free-flow condition, under which the traffic is so light that vehicles are able to maneuver freely without the impact of the presence of other traffic. For each corridor, both peak-hour travel time and free-flow travel time are collected from one end of the segment to the other, bi-directionally. The travel time data is obtained from Google Data API Services.

Figure C.5 shows the peak AM TTI and Figure C.6 shows the peak PM TTI for the CMP network. Table C.2 shows the designation of the congestion level based on the value of Travel Time Index for these corridors, illustrating that the more severe the congestion, the more time will be spent on the road, and the higher the TTI will be.

Volume-to-Capacity Ratio (V/C)

The Volume-to-Capacity Ratio (V/C) is the ratio of the facility's volume to its capacity. Using the real-world volume instead of a demanded volume, the V/C is always a value between 0 to 1. The free-flow condition mentioned before will have a very low V/C ratio close to 0 while the super-congested condition will have a very high V/C ratio close to 1.

For each corridor, the Evansville MPO chose one to two segments to show the V/C ratio. The volume is obtained from traffic counts taken by the MPO. The capacity is obtained from the Evansville MPO Travel Demand Model. Note that the capacity numbers are from link capacity without considering intersection constraints. The real-world bottlenecks for interrupted flow usually happen at intersections and will be studied using different methodologies. Table C.3 shows the results. Based on these results, overall link-based congestion in the MPO area is considered low.

Figure C.5: Travel Time Index - AM

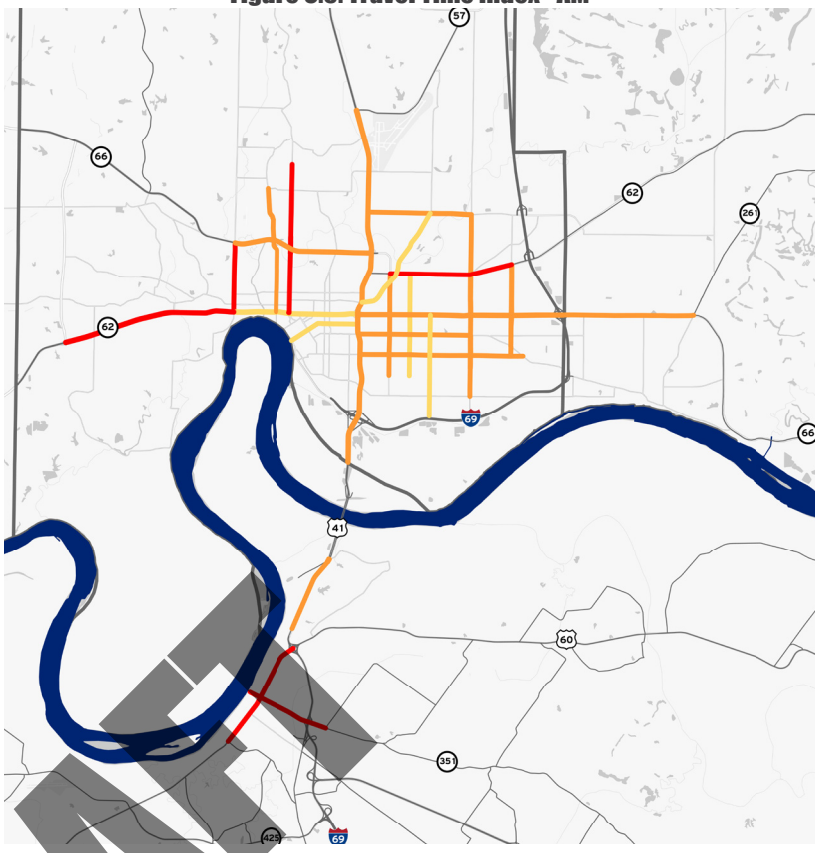
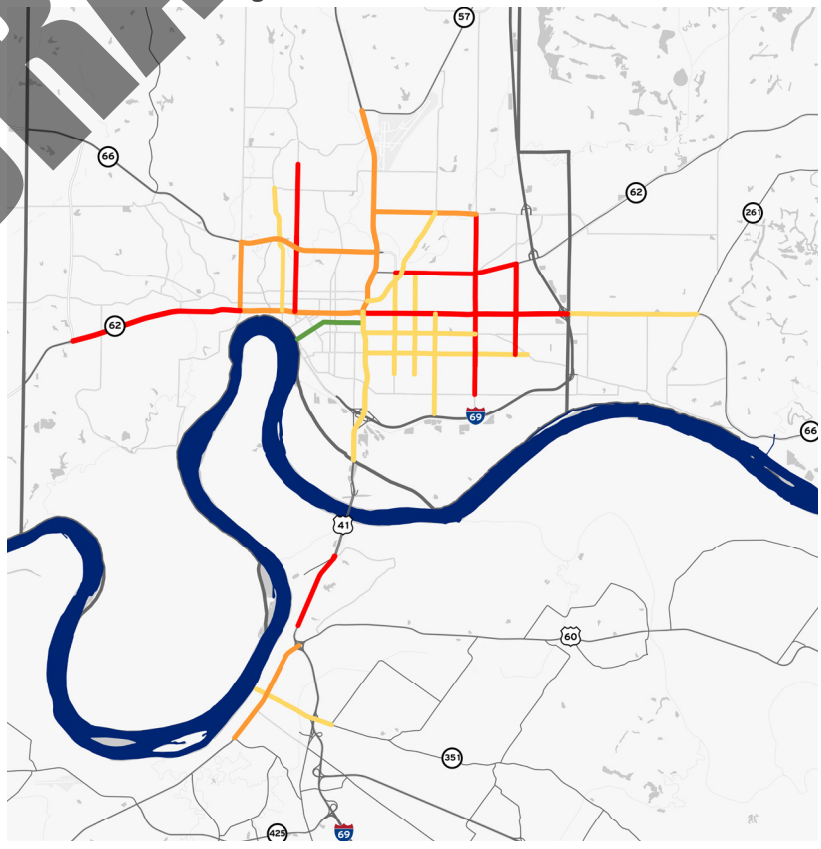


Figure C.6: Travel Time Index - PM



Congestion Level Thresholds: No Congestion <1.15 | Low Congestion 1.15 - 1.3 | Moderate Congestion 1.3 - 1.45 | High Congestion >1.45

Table C.2: TTI and Congestion Levels on CMP Corridors

Street	From	To	Length	FF TT	AM Peak				PM Peak			
					Avg TT	Avg Delay	TTI	Congestion Level	Avg TT	Avg Delay	TTI	Congestion Level
Vanderburgh County												
1st Ave	SR 62/Lloyd Expy	Old Post Rd	3.71	07:04	09:57	02:53	1.41		09:20	02:16	1.32	
1st Ave	Old Post Rd	SR 62/Lloyd Expy	3.71	06:43	09:45	03:02	1.45		09:55	03:12	1.48	
Boeke Ave	SR 62/Morgan Ave	Covert Ave	2.52	05:15	06:14	00:59	1.19		06:25	01:10	1.22	
Boeke Ave	Covert Ave	SR 62/Morgan Ave	2.52	05:16	06:13	00:57	1.18		06:30	01:14	1.23	
Burkhardt Rd	Washington Ave	SR 62/Morgan Ave	2.27	05:02	06:49	01:47	1.35		08:07	03:05	1.61	
Burkhardt Rd	SR 62/Morgan Ave	Washington Ave	2.27	04:49	06:56	02:07	1.44		08:00	03:11	1.66	
Fulton Ave	SR 62/Lloyd Expy	Mill Rd	3.08	05:43	08:04	02:21	1.41		07:05	01:22	1.24	
Fulton Ave	Mill Rd	SR 62/Lloyd Expy	3.08	05:59	07:48	01:49	1.30		06:58	00:59	1.16	
Green River Rd	SR 66/Lloyd Expy	Pollack Ave	2.01	03:38	04:56	01:18	1.36		05:25	01:47	1.49	
Green River Rd	Pollack Ave	SR 66/Lloyd Expy	2.01	04:04	05:28	01:24	1.34		05:46	01:42	1.42	
Green River Rd	SR 66/Lloyd Expy	Lynch Rd	2.5	04:33	06:13	01:40	1.37		07:48	03:15	1.71	
Green River Rd	Lynch Rd	SR 66/Lloyd Expy	2.5	04:23	06:18	01:55	1.44		07:38	03:15	1.74	
Lincoln Ave	US 41	Green River Rd	2.79	05:44	07:18	01:34	1.27		06:59	01:15	1.22	
Lincoln Ave	Green River Rd	US 41	2.79	05:54	07:44	01:50	1.31		06:43	00:49	1.14	
Lynch Rd	US 41	Green River Rd	2.6	03:44	05:19	01:35	1.42		05:18	01:34	1.42	
Lynch Rd	Green River Rd	US 41	2.6	03:52	05:00	01:08	1.29		05:11	01:19	1.34	
Oak Hill Rd	US 41	Lynch Rd	2.9	05:37	06:32	00:55	1.16		07:16	01:39	1.29	
Oak Hill Rd	Lynch Rd	US 41	2.9	05:49	07:16	01:27	1.25		06:36	00:47	1.13	
SR 62/Lloyd Expy	St. Joseph Ave	University Pkwy	4.4	05:22	07:13	01:51	1.34		07:35	02:13	1.41	
SR 62/Lloyd Expy	University Pkwy	St. Joseph Ave	4.4	05:30	08:05	02:35	1.47		08:25	02:55	1.53	
SR 62/Lloyd Expy	US 41	St. Joseph Ave	3.15	03:45	04:27	00:42	1.19		05:02	01:17	1.34	
SR 62/Lloyd Expy	St. Joseph Ave	US 41	3.15	03:47	04:24	00:37	1.16		04:16	00:29	1.13	
SR 62/Morgan Ave	Weinbach Ave	Burkhardt Rd	3.1	05:27	07:13	01:46	1.32		07:59	02:32	1.46	
SR 62/Morgan Ave	Burkhardt Rd	Weinbach Ave	3.1	04:49	07:01	02:12	1.46		07:40	02:51	1.59	
SR 66/Diamond Ave	US 41	St. Joseph Ave	3.52	05:42	07:29	01:47	1.31		07:38	01:56	1.34	
SR 66/Diamond Ave	St. Joseph Ave	US 41	3.52	05:40	07:29	01:49	1.32		07:30	01:50	1.32	
SR 66/Lloyd Expy	I 69	US 41	5.14	06:23	08:27	02:04	1.32		09:17	02:54	1.45	
SR 66/Lloyd Expy	US 41	I 69	5.14	06:08	07:54	01:46	1.29		09:18	03:10	1.52	
St. Joseph Ave	SR 62/Lloyd Expy	SR 66/Diamond Ave	1.72	03:02	04:13	01:11	1.39		03:58	00:56	1.31	
St. Joseph Ave	SR 66/Diamond Ave	SR 62/Lloyd Expy	1.72	03:11	04:38	01:27	1.46		04:00	00:49	1.26	
US 41	SR 62/Lloyd Expy	SR 57	5.19	07:34	09:42	02:08	1.28		10:11	02:37	1.35	
US 41	SR 57	SR 62/Lloyd Expy	5.19	07:56	11:04	03:08	1.39		09:58	02:02	1.26	
US 41	SR 62/Lloyd Expy	KY State Line	3.68	05:02	06:15	01:13	1.24		05:48	00:46	1.15	
US 41	KY State Line	SR 62/Lloyd Expy	3.68	04:48	06:51	02:03	1.43		05:53	01:05	1.23	
Vann Ave	SR 66/Lloyd Expy	Rheinhardt Ave	2.53	05:28	06:18	00:50	1.15		06:28	01:00	1.18	
Vann Ave	Rheinhardt Ave	SR 66/Lloyd Expy	2.53	05:49	06:43	00:54	1.15		06:37	00:48	1.14	
Washington Ave	US 41	Newburgh Rd	4.04	07:50	10:12	02:22	1.30		09:03	01:13	1.16	
Washington Ave	Newburgh Rd	US 41	4.04	07:53	09:46	01:53	1.24		09:20	01:27	1.18	
Walnut St	US 41	Riverside Dr	1.76	04:55	06:04	01:09	1.23		05:29	00:34	1.12	
Walnut St	Riverside Dr	US 41	1.76	05:33	05:51	00:18	1.05		05:51	00:18	1.05	
Weinbach Ave	SR 62/Morgan Ave	Covert Ave	2.51	05:34	07:07	01:33	1.28		06:54	01:20	1.24	
Weinbach Ave	Covert Ave	SR 62/Morgan Ave	2.51	05:22	07:09	01:47	1.33		06:55	01:33	1.29	
Warrick County												
SR 66	I 69	SR 261	3.33	04:49	06:13	01:24	1.29		06:05	01:16	1.26	
SR 66	SR 261	I 69	3.33	04:40	06:11	01:31	1.33		05:57	01:17	1.28	
Henderson County												
2nd St	Water St	Garden Mile Rd	2.16	05:14	06:40	01:26	1.27		05:31	00:17	1.05	
2nd St	Garden Mile Rd	Water St	2.16	04:34	06:52	02:18	1.50		05:50	01:16	1.28	
US 41	Wolf Hills Rd	Barret Blvd	1.9	02:42	03:28	00:46	1.28		04:19	01:37	1.60	
US 41	Barret Blvd	Wolf Hills Rd	1.9	02:34	03:30	00:56	1.36		03:39	01:05	1.42	
US 60	US 41	Sand Ln	3.6	04:44	06:32	01:48	1.38		06:38	01:54	1.40	
US 60	Sand Ln	US 41	3.6	04:48	07:05	02:17	1.48		06:32	01:44	1.36	

Congestion Level Thresholds: **No Congestion <1.15** **Low Congestion 1.15 - 1.3** **Moderate Congestion 1.3 - 1.45** **High Congestion >1.45**

Table C.3: CMP Traffic Count Locations

STREET	LOCATION	Volume/Capacity Ratio									
		Peak Hr LnCAP	# of Lanes	AM Peak				PM Peak			
				N/E Volume	N/E V/C	S/W Volume	S/W V/C	N/E Volume	N/E V/C	S/W Volume	S/W V/C
Vanderburgh County											
Boeke Rd	S of SR 62/Morgan Ave	1370	2	371		364		492		510	
Burkhardt Rd	N of Lincoln Ave	1418	1	580		483		640		678	
Burkhardt Rd	N of SR 66/Lloyd Expy	1500	2	1196		1082		1136		1240	
First Ave	N of Fairway Dr	1370	2	849		1058		1125		1107	
First Ave	N of SR 62/Lloyd Expy	1370	2	495		776		634		644	
Fulton Ave	S of SR 66/Diamond Ave	1389	2	371		530		705		436	
Green River Rd	S of Covert Ave	1370	2	449		343		484		600	
Green River Rd	S of Lynch Rd	1424	2	885		1151		1353		1140	
Green River Rd	S of SR 66/Lloyd Expy	1418	2	1404		1197		1432		1292	
Green River Rd	S of Virginia St	1438	2	1409		1139		1491		1411	
Kratzville Rd	S of Mill Rd	1269	1	297		373		443		302	
Lincoln Ave	W of Green River Rd	1424	1	471		526		638		523	
Lynch Rd	E of Oak Hill Rd	1568	2	1066		938		1137		1220	
Lynch Rd	E of US 41	1407	2	820		794		872		876	
Oak Hill Rd	S of Lynch Rd	1406	1	510		705		744		675	
Oak Hill Rd	S of SR 62/Morgan Ave	1347	1	356		503		586		460	
SR 62/Lloyd Expy	E of University Pkwy	1874	2	980		899		1505		1337	
SR 62/Lloyd Expy	W of US 41	1681	3	2463		2547		2854		2209	
SR 62/Morgan Ave	E of Boeke Rd	1431	2	871		792		1240		1330	
SR 66/Diamond Ave	W of Fares Ave	1711	3	1282		981		1239		1398	
SR 66/Diamond Ave	W of First Ave	2095	2	833		519		680		952	
SR 66/Lloyd Expy	E of Cross Pointe Blvd	1990	3	1279		2246		2438		1796	
SR 66/Lloyd Expy	E of US 41	1622	3	2691		2878		3353		2562	
St Joseph Ave	N of SR 62/Lloyd Expy	1481	2	588		889		735		778	
St Joseph Ave	S of SR 66/Diamond Ave	1389	2	593		933		699		650	
US 41	N of SR 62/Morgan Ave	1665	3	943		1572		1213		1289	
US 41	N of Washinton Ave	1879	2	1114		820		1097		1439	
US 41	S of Covert Ave	1879	2	868		580		866		999	
US 41	S of Lynch Rd	1661	2	1233		1952		1506		1680	
US 41	S of SR 57	2095	2	1158		1604		1582		1419	
Vann Ave	S of SR 66/Lloyd Expy	1370	2	540		517		638		531	
Vann Ave	S of Washington Ave	1269	1	379		226		298		388	
Walnut St	W of US 41	1269	2	248		526		453		324	
Washington Ave	E of US 41	1370	2	447		395		547		440	
Washington Ave	E of Wiltshire Dr	1407	2	296		492		429		426	
Weinbach Ave	S of SR 66/Lloyd Expy	1370	2	474		577		572		623	
Weinbach Ave	S of Washington Ave	1370	2	309		218		317		389	
Warrick County											
SR 66	W of SR 261	1882	3	908		1400		1653		1158	
SR 66	E of Grimm Rd	1981	3	1149		2108		2223		1485	
SR 66	W of Epworth Rd	1990	3	1525		1933		2303		1928	
Henderson County											
US 41	N of Walker Dr	1598	2	1449		1186		1516		1819	
US 60/Green St	N of 12th St	1481	2	913		913		1037		1037	
US 60/Green St	S of Washington St	1431	2	1021		1021		1213		1213	
2rd St	E of US 41	1370	2	483		483		649		649	

V/C Ratio Identification: 0 - 0.50 | 0.51 - 0.75 | > 0.76

Transit and Bicycle and Pedestrian

For the public transportation aspect of the CMP, the same travel conditions can be utilized to determine transit congestion because buses are subject to the same congestion levels as the rest of traffic on the CMP corridors.

As for the congestion concerning bicycle and pedestrian patterns on the CMP corridors, there is a low volume of non-motorized traffic congestion in the MPO area. Increased congestion may be seen during special events but it is still managed with the appropriate protocols. Without a major change in the Evansville metropolitan area population, bicycle and pedestrian congestion should not be a problem in the MPO area in the near future.

Congestion Management Strategies

Transportation Demand Management (TDM)

The primary purpose of TDM strategies is to reduce the number of vehicles using the road system while providing mobility options to those who want to travel. TDM strategies are designed to maximize the people-moving capacity of the transportation network, and support more efficient use of the existing transportation systems by influencing the time, route, or mode selected for a given trip. To accomplish these types of changes, TDM programs often rely on incentives to make these shifts in behavior attractive and generally work best where land uses are mixed and fairly dense, urban design is integrated with transportation systems, and there are multiple choices for travel. Incentives associated with TDM strategies include preferential parking for persons sharing carpools, vanpools, or transit; transportation allowances for transit; subsidies for transit operators; and guaranteed ride home programs. The following are some TDM alternatives that are, or may be, viable in the Evansville-Henderson area.

Ridesharing

Carpools and vanpools are typically arranged by employers. Ridesharing will reduce SOV trips and Vehicle Miles Traveled (VMT) in the region, and can be especially helpful in corridors with large employment centers. The timeframe for implementation is usually short-term.

Telecommuting

This allows employees to sometimes work from home or a regional telecommute center, which helps to reduce SOV trips, and most importantly, the amount of traffic during peak travel times. Employer costs tend to decline after initial investments and the timeframe for implementation is usually short-term.

Alternative Work Hour Programs

This allows workers to arrive and leave work outside the traditional commute period. It may be accomplished by Compressed Work Weeks in which employees work a full week in fewer than the typical five days, or a Flexible Work Schedule that shifts work start and end times to off-peak hours of the day. Employer implementation costs vary and the timeframe for implementation is usually short-term.

Public Transit

Transit can be promoted as a TDM strategy when there is a demand for transit service and other TDM strategies are not able to alleviate congestion. Fare reductions (replaced by operational subsidies), increasing route coverage or frequencies, and implementing park and ride lots all have short-to-medium term implementation timeframes. Costs include capital, operational, and possibly structural outlays.

Non-motorized Improvements

Bicycling and walking are important for travel purposes, especially in mixed land use development areas, and aid in reducing congestion and air pollution. New sidewalks and designated bicycle lanes increase mobility and access. Providing access for pedestrians and cyclists in developments and at transit facilities encourages people to walk and use bicycles. Implementation costs can be part of design and construction costs. The timeframe for implementation of most strategies is short-to-medium term.

Transportation System Management (TSM)

The TSM approach to congestion mitigation seeks to identify improvements of an operational nature to enhance the capacity of an existing system. Through better management and operation of existing transportation facilities, these techniques are designed to improve traffic flow, air quality, and movement of vehicles and goods, as well as enhance system accessibility and safety.

Intersection and Lane Improvements

Congestion and travel time can be improved by installing traffic control devices and designs for the efficient and safe passage of both pedestrians and vehicles. The devices and designs used could be signs, turning lanes, auxiliary lanes, traffic islands, traffic channels, and other appropriate geometric elements to help reduce congestion and improve the safety and ease of travel. Implementation costs vary, but are usually moderate to high, and the timeframe for implementation of most strategies is short-to-medium term.

Traffic Signal Improvements

Studies have shown that changes in a signal's physical equipment and timing optimization can help significantly in congestion mitigation. Traffic flow could be improved by equipment updates, timing plan improvements, interconnected signals, traffic signal removal, or traffic signal maintenance as needed. Implementation costs vary and the timeframe for implementation is usually short-term.

Intelligent Transportation (ITS)

Integrating ITS solutions into the transportation system's infrastructure may be able to assist with relieving congestion, improving safety, and enhancing productivity by reducing the overall trip time for both people and goods. These intelligent transportation solutions can include computers, communications, and displays. Implementation costs vary and the timeframe for implementation is usually medium-term.

Incident Detection and Management Systems

To alleviate non-recurring congestion, systems typically include video monitoring, dispatch systems, and sometimes service patrol vehicles. The prompt removal of disabled vehicles from travel lanes reduces travel time and accident delay. Capital costs are variable, as are annual operating maintenance and operational costs. The timeframe for implementation is usually medium-term.

Other Strategies

Aside from TDM and TSM strategies, a variety of other strategies may be used to mitigate congestion. Most of these strategies and techniques are employed to some degree in the Evansville-Henderson area already, but not as part of a coordinated congestion management effort.

Land Use Strategies

Land-use techniques and urban design can be used to mitigate congestion by integrating land-use planning (e.g. zoning), site planning, innovative development styles, and landscaping within a transportation system. Mixed-Use Development, Infill and Densification, Traditional Neighborhood Design, and Transit-Oriented Development all support a reduction of SOV travel and reduction of VMT. Some of these strategies involve public costs in creating ordinances. The timeframe for implementation is usually long-term.

Access Management

Access management consists of controlling the space and design of driveways and other curb cuts, medians, and median openings, intersections, traffic signals, and freeway interchanges. Appropriate access control can decrease the number of accidents and congestion. To have a successful access management plan, both transportation planners and land use planners have to work cooperatively. The benefits of access management are fewer conflict points, increased mobility, fewer crashes, increased capacity, and shorter travel times. Implementation costs can be part of design and construction costs, but new signsage, striping, and other new facility costs for reconstruction can vary widely. The timeframe for implementation of most strategies is short-to-medium term (0-10 years).

Highways Strategies

The traditional way to deal with congestion has been to widen a highway and add lanes, but this is usually a short-term solution because traffic acts like a gas: it expands to fill the space available. Lanes can sometimes be added without widening the highway. Geometric element improvements (as described above under Intersection and

Lane Improvements), can serve to improve mobility, reduce congestion, and improve safety. The conversion of existing major arterials with signalized intersections into grade-separated interchanges, as was done to create Evansville's Lloyd Expressway, also serve to increase capacity and mobility. Implementation costs can be part of design and construction costs, but new facility costs for reconstruction can vary widely. Also, there is potential for significant environmental and community impacts. The timeframe for implementation of most strategies is short-to-long term.

Parking Management

Many communities have adopted parking policies to induce transportation mode shifts, increase peak-period capacity, promote access preservation, and improve environmental quality. Parking management strategies include: On-street Parking and Standing Restrictions; Employer/Landlord Parking Agreements; Location-Specific Parking Ordinances; and Preferential/Free Parking for Ride-sharers. Implementation costs vary and the timeframe for implementation of most strategies is usually short-term.

Congestion Factors and Potential Mitigation Actions

The following are examples of TDM, TSM, and other congestion-reduction strategies applied to particular congestion problems:

Single Occupant Vehicle (SOV) Travel

SOV is the predominant mode of travel within the MPO area and is a major cause of congestion and deteriorating air quality.

Action

- **TDM:** Ridesharing (carpooling, vanpooling); transit service; bikeways & walkways, alternative work-hour programs; telecommuting, parking management.
- **TSM/Other:** Traffic signal improvement; intersection improvement; transit-oriented development; access management; Intelligent Transportation System (ITS).

Traffic Signal Synchronization

Unsynchronized signals contribute to traffic congestion. Drivers experience stops, stop-delays, and longer travel time contributing to increased fuel consumption, congestion, and air pollution.

Action

- **TSM:** Traffic signal improvements.

Access Management

Closely spaced driveways/curb cuts, and driveways too near intersections on arterial streets, hamper traffic movement causing congestion and air pollution.

Action

- **TSM/Other:** Geometric design; traffic signal improvements; intersection improvement; parking management; land-use strategies (e.g. subdivision regulations; urban design).

Intersections Without Right Turn Channelization

Intersections that experience heavy right turn traffic movements without dedicated right turn lanes contribute to congestion during peak hours.

Action

- **TSM:** Geometric design (lane marking); traffic signal improvement; intersection improvements.

School Zones on Major Arterials

The intent of the arterial street system is to emphasize mobility rather than land accessibility within the urban area. Low driving speed limits in school zones on major arterials cause traffic delays and congestion.

Action

- **TSM:** Geometric design; traffic signal improvements; intersection improvements; parking management; access management (designated crosswalks).

Walkways

Walkways that are not properly maintained, that lack ADA accessibility ramps, and that do not properly connect residential and commercial activity centers discourage potential users.

Action

- **TDM:** Sidewalk additions and upgrades; multi-use path additions and upgrades. TSM/ Other: Traffic signal improvements, intersection improvements, urban design improvements, access management.

Bikeways

On- and off-street bicycle facilities help to alleviate congestion and enhance air quality by providing an alternative to automobile travel.

Action

- **TDM:** Bicycle lanes and routes; multi-use facility additions and upgrades; bike parking.
- **TSM/Other:** Urban design improvements (e.g. mixed-use development), access management; traffic signal improvements, intersection improvements.

Transit Service

Enhanced travel and headway times in the urban area can mitigate congestion and improve air quality; Bus bays play an important part in reducing congestion on busy streets.

Action

- **TDM:** Direct transit routes between activity centers and residential areas.
- **TSM:** Bus-priority signals at intersections; geometric design (study to determine feasibility of addition of bus bays).

Program and Implementing Strategies

To integrate CMP and the Metropolitan Transportation Plan, the EMPO has included the CMP data for project prioritization criteria, where applicable, for a determination of roadway congestion reduction. The EMPO will work with local jurisdictions to implement the congestion management strategies. The EMPO will support local jurisdictions in the evaluation and implementation of congestion management strategies as appropriate.

Evaluation of Congestion Management Strategies Effectiveness

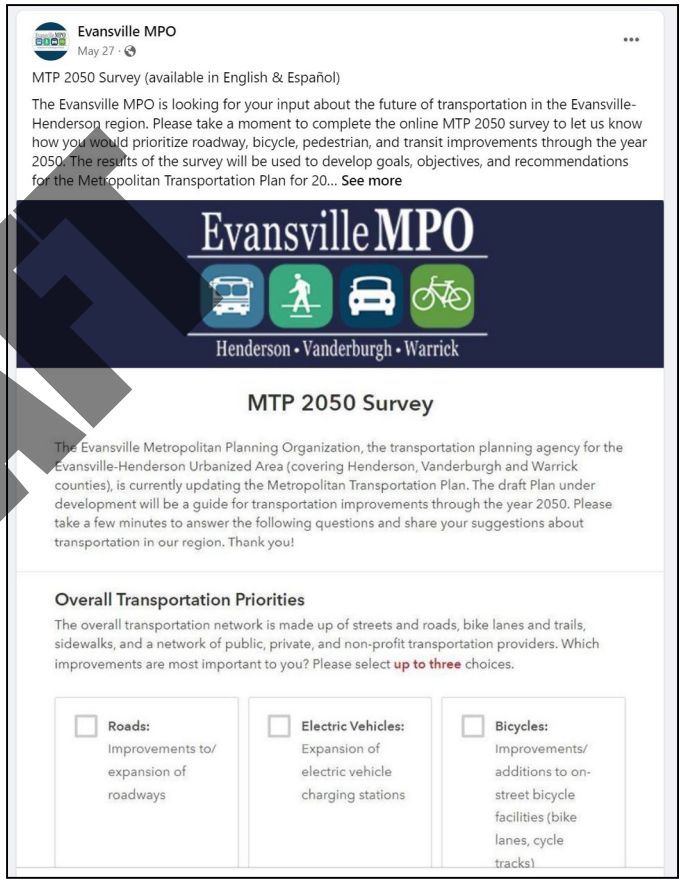
The EMPO will conduct a before and after performance measures analysis for all congestion reduction related projects within the TMA. For each project, the most appropriate performance measures will be selected for evaluation based on the type of the project. If the project lies in one of the 25 corridors, the same performance measures, namely Travel Time Index and Volume/Capacity ratio, will be examined after the project is implemented. The results will be compared with the values before the project is implemented to see whether the project helped reduce the congestion along the corridor.

The Evansville MPO designed an online survey that allowed participants to select their top three overall transportation priorities, as well as their top priorities for roadway, bicycle, pedestrian, transit, and the creation of a mobility management/ complete trips app. The survey was available online from May 27, 2022 through June 17, 2022 in both English and Spanish. A paper version of the survey was available at the Evansville MPO office.

Information about the public survey was distributed by email to the MPO's Policy Committee, Technical Committee, and Regional Transit Advisory Committee, who then shared it with their networks. United Neighborhoods of Evansville (UNOE) was also notified and they were able to email information to their membership as well as on their monthly newsletter. Flyers were posted in the Evansville-Vanderburgh County Civic Center building and at bus terminals for both METS and HART. The MPO website included a link to access the survey and Facebook post was added to the MPO's Facebook page. The Facebook post reached 14,600 people, meaning they saw the post at least once, had 84 reactions (likes or loves), 37 comments, and 55 shares. The Facebook pages for the cities/towns of Evansville, Henderson, Newburgh, and Chandler also shared the post.

Out of the 424 responses collected, 92% listed a personal vehicle as their most common mode of travel. However, when asked about overall priorities, 61% of respondents listed roadway improvements as their top priority. Because each respondent was able to select up to three priorities, these totals will not total to 100%.

Figure D.1: MPO Facebook Post



D PUBLIC SURVEY & OPEN HOUSES

Figure D.2: Survey Flyer - Evansville

Evansville MPO

Henderson • Vanderburgh • Warrick

MTP 2050

Metropolitan Transportation Plan

The Evansville Metropolitan Planning Organization (EMPO), the transportation planning agency for the Evansville-Henderson Urbanized Area (covering Henderson, Vanderburgh and Warrick counties), is currently updating the Metropolitan Transportation Plan. The draft Plan under development will be a guide for transportation improvements through the year 2050.

The EMPO is seeking your opinion on the region's transportation system and what you would like to see improved between today and 2050. We invite you to take a short survey. The results will be used to help prioritize projects and guide the overall development of the MTP 2050.

WHO: those that live or work in Vanderburgh, Warrick and Henderson counties

WHAT: a survey to provide your opinion on future transportation projects in the region

WHEN: May 27 - June 17

HOW: online: evansvillempo.com/mtpsurvey.html

in person: 1 NW Martin Luther King Jr Blvd.
Room 316 - Civic Center Complex
Evansville, Indiana 47708

Scan here with mobile device:

DRAFT

Figure D.3: Survey Flyer - Evansville (Spanish)

Evansville MPO

Henderson • Vanderburgh • Warrick

MTP 2050

Plan de transporte metropolitano

El Evansville Metropolitan Planning Organization (EMPO), la agencia de planificación de transporte para el Área Urbanizada Evansville-Henderson (que abarca los condados de Henderson, Vanderburgh y Warrick), actualmente está actualizando el Plan de Transporte Metropolitano. El borrador del Plan en desarrollo será una guía para las mejoras de transporte hasta el año 2050.

El EMPO está buscando su opinión sobre el sistema de transporte de la región y lo que le gustaría ver mejorado entre hoy y 2050. Le invitamos a realizar una breve encuesta. Los resultados se usarán para ayudar a priorizar proyectos y guiar el desarrollo general del MTP 2050.

Quien: aquellos que viven o trabajan en los condados de Vanderburgh, Warrick y Henderson

Qué: una encuesta para proporcionar su opinión sobre futuros proyectos de transporte en la región

Cuando: 27 de mayo - 17 de junio

Cómo: en línea: evansvillempo.com/mtpsurvey.html

en persona: 1 NW Martin Luther King Jr Blvd.
Room 316 - Civic Center Complex
Evansville, Indiana 47708

Escanea aquí con un dispositivo móvil:

Figure D.4: Survey Flyer - Henderson

Evansville MPO

Henderson • Vanderburgh • Warrick

MTP 2050

Metropolitan Transportation Plan

The Evansville Metropolitan Planning Organization (EMPO), the transportation planning agency for the Evansville-Henderson Urbanized Area (covering Henderson, Vanderburgh and Warrick counties), is currently updating the Metropolitan Transportation Plan. The draft Plan under development will be a guide for transportation improvements through the year 2050.

The EMPO is seeking your opinion on the region's transportation system and what you would like to see improved between today and 2050. We invite you to take a short survey. The results will be used to help prioritize projects and guide the overall development of the MTP 2050.

WHO: those that live or work in Vanderburgh, Warrick and Henderson counties

WHAT: a survey to provide your opinion on future transportation projects in the region

WHEN: May 27 - June 17

HOW:

online: evansvillempo.com/mtpsurvey.html

in person: Henderson Municipal Center
222 First Street
Henderson, KY 42420

Scan here with mobile device:

Figure D.5: Survey Flyer - Henderson (Spanish)

Evansville MPO

Henderson • Vanderburgh • Warrick

MTP 2050

Plan de transporte metropolitano

El Evansville Metropolitan Planning Organization (EMPO), la agencia de planificación de transporte para el Área Urbanizada Evansville-Henderson (que abarca los condados de Henderson, Vanderburgh y Warrick), actualmente está actualizando el Plan de Transporte Metropolitano. El borrador del Plan en desarrollo será una guía para las mejoras de transporte hasta el año 2050.

El EMPO está buscando su opinión sobre el sistema de transporte de la región y lo que le gustaría ver mejorado entre hoy y 2050. Le invitamos a realizar una breve encuesta. Los resultados se usarán para ayudar a priorizar proyectos y guiar el desarrollo general del MTP 2050.

Quien: aquellos que viven o trabajan en los condados de Vanderburgh, Warrick y Henderson

Qué: una encuesta para proporcionar su opinión sobre futuros proyectos de transporte en la región

Cuando: 27 de mayo - 17 de junio

Cómo: en línea: evansvillempo.com/mtpsurvey.html

en persona: Henderson Municipal Center
222 First Street
Henderson, KY 42420

Escanea aquí con un dispositivo móvil:

Figure D.6: Survey

Evansville Metropolitan Planning Organization

MTP 2050

Metropolitan Transportation Plan

Evansville MPO

Henderson • Vanderburgh • Warrick

The Evansville Metropolitan Planning Organization, the transportation planning agency for the Evansville-Henderson Urbanized Area (covering Henderson, Vanderburgh and Warrick counties), is currently updating the Metropolitan Transportation Plan. The draft Plan under development will be a guide for transportation improvements through the year 2050. Please take a few minutes to answer the following questions and share your suggestions about transportation in our region. Thank you!

Overall Transportation Priorities:

The overall transportation network is made up of streets and roads, bike lanes and trails, sidewalks, and a network of public, private, and non-profit transportation providers. Which improvements are most important to you? Please select **up to three** choices.

_____ **Roads:** Improvements to/expansion of roadways

_____ **Electric Vehicles:** Expansion of electric vehicle charging stations

_____ **Bicycles:** Improvements/additions to on-street bicycle facilities (bike lanes, cycle tracks)

_____ **Pedestrians:** Improvements/additions to pedestrian facilities (sidewalks, crosswalks)

_____ **Greenways:** Improvements/additions to greenways/shared use paths (Pigeon Creek Greenway, Rivertown Trail, Henderson Riverwalk)

_____ **Transit:** Improvements/expansion of fixed route transit (METS, HART, WATS)

_____ **On-demand:** Expansion of on-demand transit (METS Mobility, HART Paratransit, non-profit transportation)

_____ **Mobility Management:** Development of an app to help users find alternative modes of transportation (bus routes, trail locations, bike share stations, etc)

Roadway Priorities:

Bicycle facilities can be added to the transportation network in a variety of ways. Which facilities would have the greatest benefit to biking as a mode of transportation in the region? Please select up to **three choices**.

_____ **New roads:** Construction of new roads and streets

_____ **Road expansion:** Road widening, added lanes/shoulders to existing roads

_____ **Complete streets:** Road diets, bicycle lanes, sidewalks, transit (when applicable)

_____ **Road maintenance:** Paving, bridge rehabilitation

_____ **Intersection improvements:** Added turn lanes, better signal timing, roundabouts

_____ **Electric Vehicles:** Expansion of electric vehicle charging stations

over ⟶

Figure D.6: Survey (Cont.)

MTP 2050

Metropolitan Transportation Plan - Public Survey

Bicycle Priorities:

Bicycle facilities can be added to the transportation network in a variety of ways. Which facilities would make you most comfortable when riding your bike? Please select **up to three** choices.

_____ **Bike lanes:** Dedicated space for cyclists on street, ex: Oak Hill Rd in Evansville, Lincoln Ave in Warrick Co, 2nd St in Henderson

_____ **Cycle tracks:** Separated/buffered space for cyclists on street, ex: North Main Street and Walnut Street in Evansville

_____ **Greenways:** Separated space away from vehicle traffic, ex: Pigeon Creek Greenway in Evansville, Rivertown Trail in Newburgh, Henderson Riverwalk

_____ **Road diets:** Typically a 4-lane street converted to a 3-lane street with space for cyclists, ex: Lincoln Ave and Covert Ave in Evansville

_____ **Bike share:** Increase the amount of bike share stations

_____ **Scooters:** Increase the number of scooters available to rent

Pedestrian Priorities:

Everyone is a pedestrian at some point throughout any trip they make. Which of the following pedestrian facilities would help you most during your daily activities? Please select **up to three** choices.

_____ **New sidewalks:** Add to existing streets and new developments

_____ **Repair existing sidewalks:** Fix cracked and uneven sidewalks

_____ **Curb ramps:** Add/improve curb ramps to improve ADA accessibility

_____ **Crosswalk/signal improvements:** Add more crosswalks, increase crossing times

_____ **Greenways:** Separated space away from vehicle traffic, ex: Pigeon Creek Greenway in Evansville, Rivertown Trail in Newburgh, Henderson Riverwalk

_____ **Pedestrian overpasses:** Add more pedestrian overpasses across major roadways like US 41 and the Lloyd Expressway

Transit Priorities:

Transit improvements can help increase availability, decrease wait times, and make the overall system easier to use for all riders. Which of the following improvements would make it easier for you to use transit? Please select **up to three** choices.

_____ **Add routes:** Add routes to the METS, HART or WATS fixed route system

_____ **Extend service times:** Add service times so METS, HART and WATS start earlier and end later

_____ **Introduce microtransit:** Introduce on-demand public transportation to expand options in targeted areas

_____ **Connect counties:** Increase connections between counties using MET, HART and WATS and/or on-demand services

_____ **Improve shelters:** Add new and improve existing shelters and transfer terminals for METS, HART and WATS

_____ **Improve service frequency:** Decrease wait times for buses, decrease hourly routes to 30 minutes

_____ **Incorporate technology:** Create a mobile app that includes all systems, add online/mobile fare payments

over ⟶

Figure D.6: Survey (Cont.)

MTP 2050

Metropolitan Transportation Plan - Public Survey

Mobility Management/Complete Trips App:

If an app and website were developed to help the public better understand alternative transportation options, what are the most important items that need to be included? Please select **up to three** choices.

_____ **Transit route maps:** METS, HART, and WATS routes, stops, and transfer stations

_____ **On-demand transportation contacts:** Contact info for METS Mobility, HART Paratransit, and non-profit agencies

_____ **Bicycle facilities map:** Maps of the Greenway, cycle tracks, and bike lanes

_____ **Pedestrian facilities map:** Maps of the Greenway, Henderson Riverwalk, Rivertown Trail and sidewalks

_____ **Bike share stations:** A map of bike share locations and instructions for use

_____ **Scooters:** A list of available scooter operators and links to maps

_____ **EV charging stations:** A map of electric vehicle charging stations

To help us better understand who we have reached, please tell us a little bit about yourself. All responses are optional and confidential.

Zip code:

_____

Age:

- ☐ 0-19
- ☐ 20-24
- ☐ 25-44
- ☐ 45-64
- ☐ 65+

Household Income:

- ☐ less than $10,000
- ☐ $10,000-$24,999
- ☐ $25,000-$49,999
- ☐ $50,000-$74,999
- ☐ $75,000-$99,999
- ☐ $100,000+

Ethnicity:

- ☐ Hispanic
- ☐ Non-Hispanic

Race:

- ☐ American Indian and Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian and Pacific Islander
- ☐ White
- ☐ Other (specify)_____

My most common mode of travel is:

- ☐ Personal vehicle
- ☐ Transit (bus or other)
- ☐ Carpool/Vanpool
- ☐ Bicycle
- ☐ Walking
- ☐ Other (specify)_____

Based on your most common mode of travel, what improvement or project would have the greatest positive impact on your daily travel? Be specific, and include county and street name if applicable.

_____

_____

_____

_____

_____

Thank you for your time and ideas!

Please mail or drop off to the address below. Scanned PDFs can be sent to the email below.

Evansville Metropolitan Planning Organization
1NW Martin Luther King Jr. Blvd., Room 316, Evansville, Indiana 47708
812-436-7833; www.evansvillempo.com; comments@evansvillempo.com

Figure D.7: Spanish Survey

Evansville Metropolitan Planning Organization

MTP 2050

Plan de Transporte Metropolitano

Evansville MPO

Henderson • Vanderburgh • Warrick

El Evansville Metropolitan Planning Organization, la agencia de planificación del transporte para el Área Urbanizada de Evansville-Henderson (que cubre los condados de Henderson, Vanderburgh y Warrick), actualmente está actualizando el Plan de Transporte Metropolitano. El borrador del Plan en desarrollo será una guía para las mejoras del transporte hasta el año 2050. Tómese unos minutos para responder las siguientes preguntas y compartir sus sugerencias sobre el transporte en nuestra región. ¡Gracias!

Prioridades generales de transporte:

La red de transporte en general está compuesta por calles y caminos, carriles y senderos para bicicletas, aceras y una red de proveedores de transporte públicos, privados y sin fines de lucro. ¿Qué mejoras son más importantes para usted? Seleccione hasta **tres opciones**.

_____ **Caminos:** Mejoras a/ ampliación de caminos

_____ **Vehículos eléctricos:** Ampliación de puntos de recarga de vehículos eléctricos

_____ **Bicicletas:** Mejoras/ adiciones a las instalaciones para bicicletas en la calle (carriles para bicicletas, pistas para bicicletas)

_____ **Peatones:** Mejoras/adiciones a las instalaciones para peatones (aceras, cruces de peatones)

_____ **Vías verdes:** Mejoras/ampliaciones de vías verdes/senderos de uso compartido (Pigeon Creek Greenway, Rivertown Trail, Henderson Riverwalk)

_____ **Tránsito:** Mejoras/ampliación del tránsito de ruta fija (METS, HART, WATS)

_____ **Bajo demanda:** Expansión del tránsito bajo demanda (METS Mobility, HART Paratransit, y proveedores de transporte sin fines de lucro)

_____ **Mobility Management:** Desarrollo de una aplicación para ayudar a los usuarios a encontrar modos alternativos de transporte (rutas de autobús, ubicaciones de senderos, estaciones de bicicletas compartidas, etc.)

Prioridades de la carretera:

El nivel de detalle en los proyectos viales puede variar y beneficiar a una variedad de usuarios de diferentes maneras. ¿Qué mejoras viales le beneficiarían más? Seleccione hasta **tres opciones**.

_____ **Nuevos caminos:** Construcción de nuevas carreteras y calles

_____ **Ampliación de carreteras:** Ampliación de caminos, carriles adicionales/banquinas a caminos existentes

_____ **Calles completas:** Dietas viales, carriles para bicicletas, aceras, tránsito (cuando corresponda)

_____ **Mantenimiento de carreteras:** Pavimentación, rehabilitación de puentes

_____ **Mejoras en las intersecciones:** Se agregaron carriles de giro, mejor tiempo de señal, rotondas

_____ **Vehículos eléctricos:** Ampliación de puntos de recarga de vehículos eléctricos

continuar ⟶

Figure D.7: Spanish Survey (Cont.)

MTP 2050

Plan de Transporte Metropolitano - Encuesta pública

Prioridades de bicicletas:

Las instalaciones para bicicletas se pueden agregar a la red de transporte en una variedad de formas. ¿Qué instalaciones tendrían el mayor beneficio para el ciclismo como modo de transporte en la región? Seleccione hasta **tres opciones**.

_____ **Líneas de bicicleta:** Espacio dedicado para ciclistas en la calle, por ejemplo: Oak Hill Rd en Evansville, Lincoln Ave en Warrick Co, 2nd St en Henderson

_____ **Pistas para bicicletas:** Espacio separado/protegido para ciclistas en la calle, por ejemplo: North Main Street y Walnut Street en Evansville

_____ **Vías verdes:** Espacio separado del tráfico de vehículos, por ejemplo: Pigeon Creek Greenway en Evansville, Rivertown Trail en Newburgh, Henderson Riverwalk

_____ **Dieta de carretera:** Por lo general, una calle de 4 carriles convertida en una calle de 3 carriles con espacio para ciclistas, por ejemplo: Lincoln Ave and Covert Ave en Evansville

_____ **Compartir bicicleta:** Aumentar la cantidad de estaciones de bicicletas compartidas

_____ **Scooters:** Aumentar el número de scooters disponibles para alquilar

Prioridades de los peatones:

Todos somos peatones en algún momento a lo largo de cualquier viaje que hacemos. ¿Cuál de las siguientes instalaciones para peatones le ayudaría más durante sus actividades diarias? Seleccione hasta **tres opciones**.

_____ **Nuevas aceras:** Agregar a calles existentes y nuevos desarrollos

_____ **Reparar las aceras existentes:** Reparar aceras agrietadas y desniveladas

_____ **Rampas de bordillo:** Agregar/mejorar rampas en las aceras para mejorar la accesibilidad ADA

_____ **Mejorar los cruces peatonales y las señales:** Agregue más cruces peatonales, aumente los tiempos de cruce

_____ **Vías verdes:** Espacio separado del tráfico de vehículos, por ejemplo: Pigeon Creek Greenway en Evansville, Rivertown Trail en Newburgh, Henderson Riverwalk

_____ **Paso elevado para peatones:** Agregue más pasos elevados para peatones en las principales carreteras como US 41 y el Lloyd Expressway

Prioridades de tránsito:

Las mejoras de tránsito pueden ayudar a aumentar la disponibilidad, disminuir los tiempos de espera y hacer que el sistema general sea más fácil de usar para todos los pasajeros. Seleccione hasta **tres opciones**.

_____ **Añadir rutas:** Agregue rutas al sistema de rutas fijas para METS, HART o WATS

_____ **Ampliar los tiempos de servicio:** Agregue tiempos de servicio para que METS, HART y WATS comiencen antes y terminen más tarde

_____ **Introducir microtránsito:** Introducir bajo demanda transporte público para ampliar las opciones en áreas específicas

_____ **Conectar condados:** Aumentar las conexiones entre condados utilizando METS, HART y WATS y/o servicios bajo demanda

_____ **Mejorar los albergues:** Agregar nuevos refugios y mejorar los existentes y terminales de transferencia para METS, HART y WATS

_____ **Mejorar la frecuencia del servicio:** Reducir los tiempos de espera de los autobuses, reducir las rutas por hora a 30 minutos

_____ **Incorporar tecnología:** Cree una aplicación móvil que incluya todos los sistemas, agregue pagos en línea o pagos de tarifas móviles

continuar ⟶

Figure D.7: Spanish Survey (Cont.)

MTP 2050

Plan de Transporte Metropolitano - Encuesta pública

App de Gestión de Movilidad/Viajes Completos:

Si se desarrollaron una aplicación y un sitio web para ayudar al público a comprender mejor las opciones de transporte alternativo, ¿cuáles son los elementos más importantes que deben incluirse? Seleccione hasta **tres opciones**.

_____ **Mapas de rutas de tránsito:** Rutas, paradas y estaciones de transferencia de los METS, HART y WATS

_____ **Contactos de transporte bajo demanda:** Información de contacto de METS Mobility, HART Paratransit y agencias sin fines de lucro

_____ **Mapa de instalaciones para bicicletas:** Mapas de la Vía Verde, pistas para bicicletas y líneas de bicicleta

_____ **Mapa de instalaciones para peatones:** Mapas de la Vía Verde, Henderson Riverwalk, Rivertown Trail y acercas

_____ **Estaciones de bicicletas compartidas:** Un mapa de ubicaciones de bicicletas compartidas e instrucciones de uso

_____ **Scooters:** Una lista de operadores de scooters disponibles y enlaces a mapas

_____ **Estaciones de carga para vehículos eléctricos:** Un mapa de estaciones de carga de vehículos eléctricos

Para ayudarnos a comprender mejor a quién hemos llegado, cuéntenos un poco sobre usted. Todas las respuestas son opcionales y confidenciales.

Código postal:

_____

Mi edad es:

- ☐ 0-19
- ☐ 20-24
- ☐ 25-44
- ☐ 45-64
- ☐ 65+

Ingresos del hogar:

- ☐ less than $10,000
- ☐ $10,000-$24,999
- ☐ $25,000-$49,999
- ☐ $50,000-$74,999
- ☐ $75,000-$99,999
- ☐ $100,000+

Etnicidad:

- ☐ Hispano(a)
- ☐ No Hispano(a)

Raza:

- ☐ Indio(a) americano(a) y nativo(a) de Alaska
- ☐ Asiático(a)
- ☐ Negro(a) o afroamericano(a)
- ☐ Nativo(a) hawaiano(a) e isleño(a) del Pacífico
- ☐ Blanco(a)
- ☐ Otro (especificar) _____

Mi modo de viaje más común es:

- ☐ Vehiculo Personal
- ☐ Tránsito (autobús u otro)
- ☐ Coche compartido/ Vanpool
- ☐ Bicicleta
- ☐ Caminando
- ☐ Otro (especificar) _____

Según su modo de viaje más común, ¿qué mejora o proyecto tendría el mayor impacto positivo en sus viajes diarios? Sea específico e incluya el nombre de la carretera y el condado si corresponde.

_____

_____

_____

_____

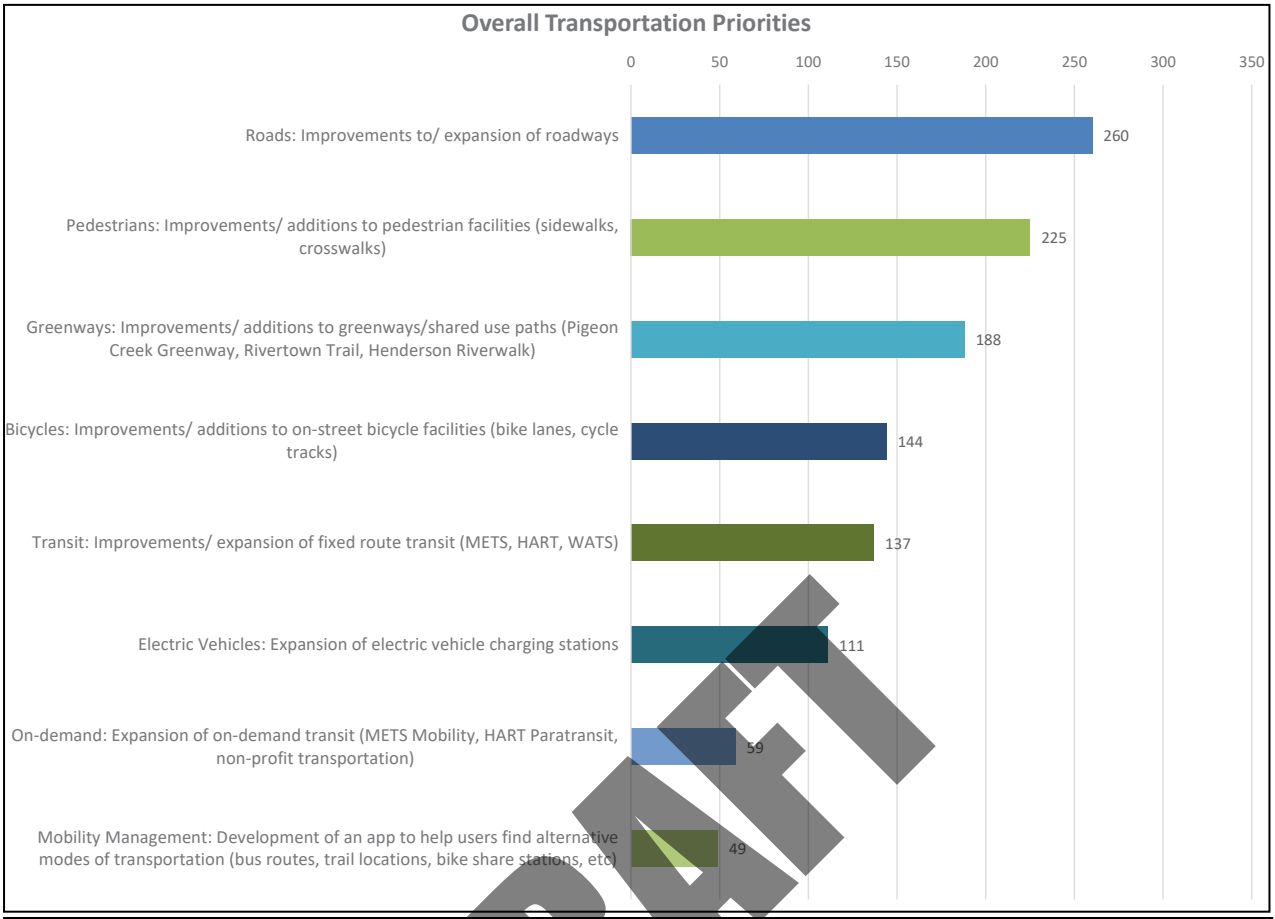
_____

¡Gracias por su tiempo e ideas!

Envíe por correo o déjelo en la dirección abajo. PDF escaneados se pueden enviar al correo electrónico a abajo.

Evansville Metropolitan Planning Organization
1NW Martin Luther King Jr. Blvd., Room 316, Evansville, Indiana 47708
812-436-7833; www.evansvillempo.com; comments@evansvillempo.com

Figure D.8: Survey Results



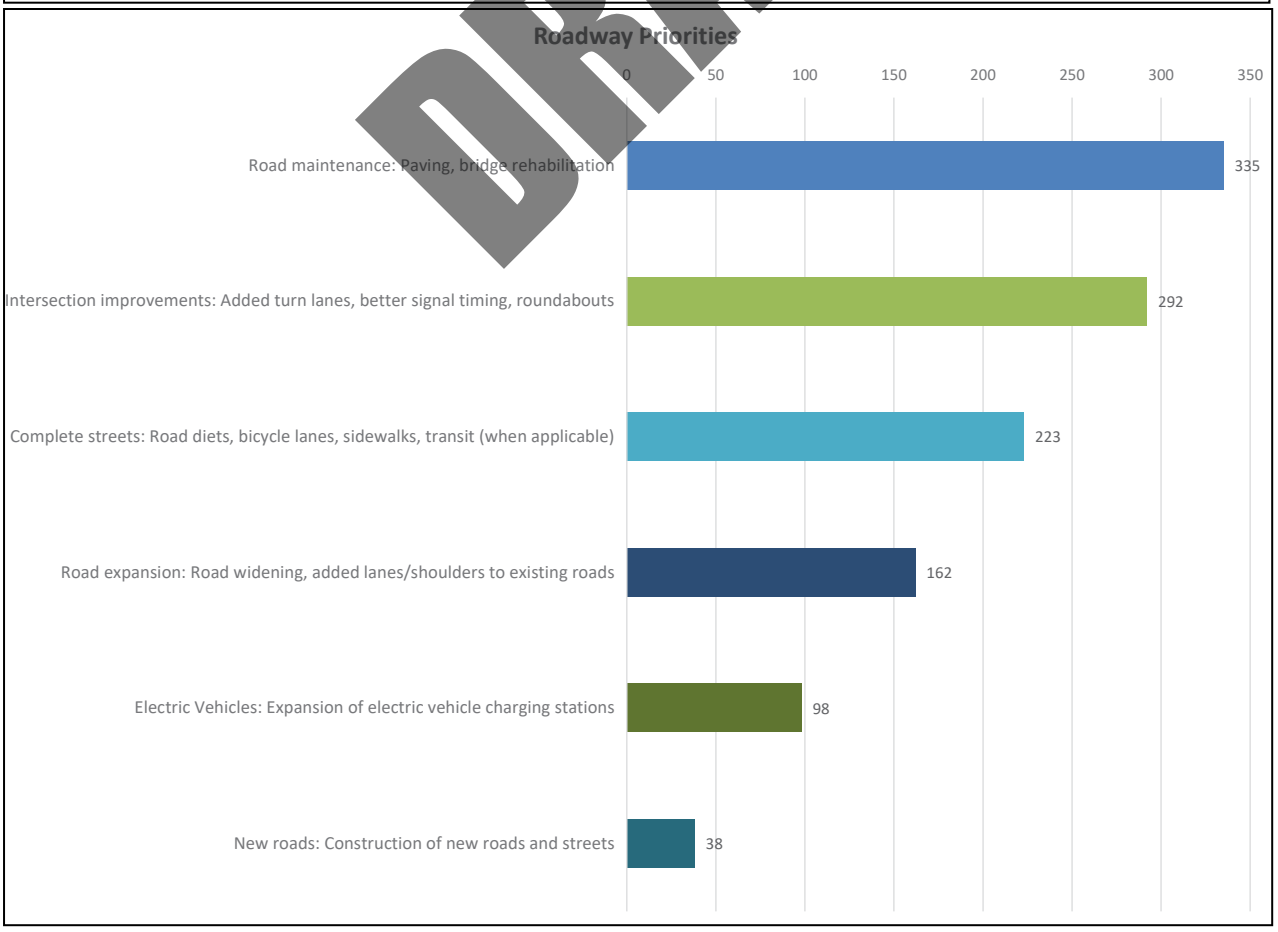
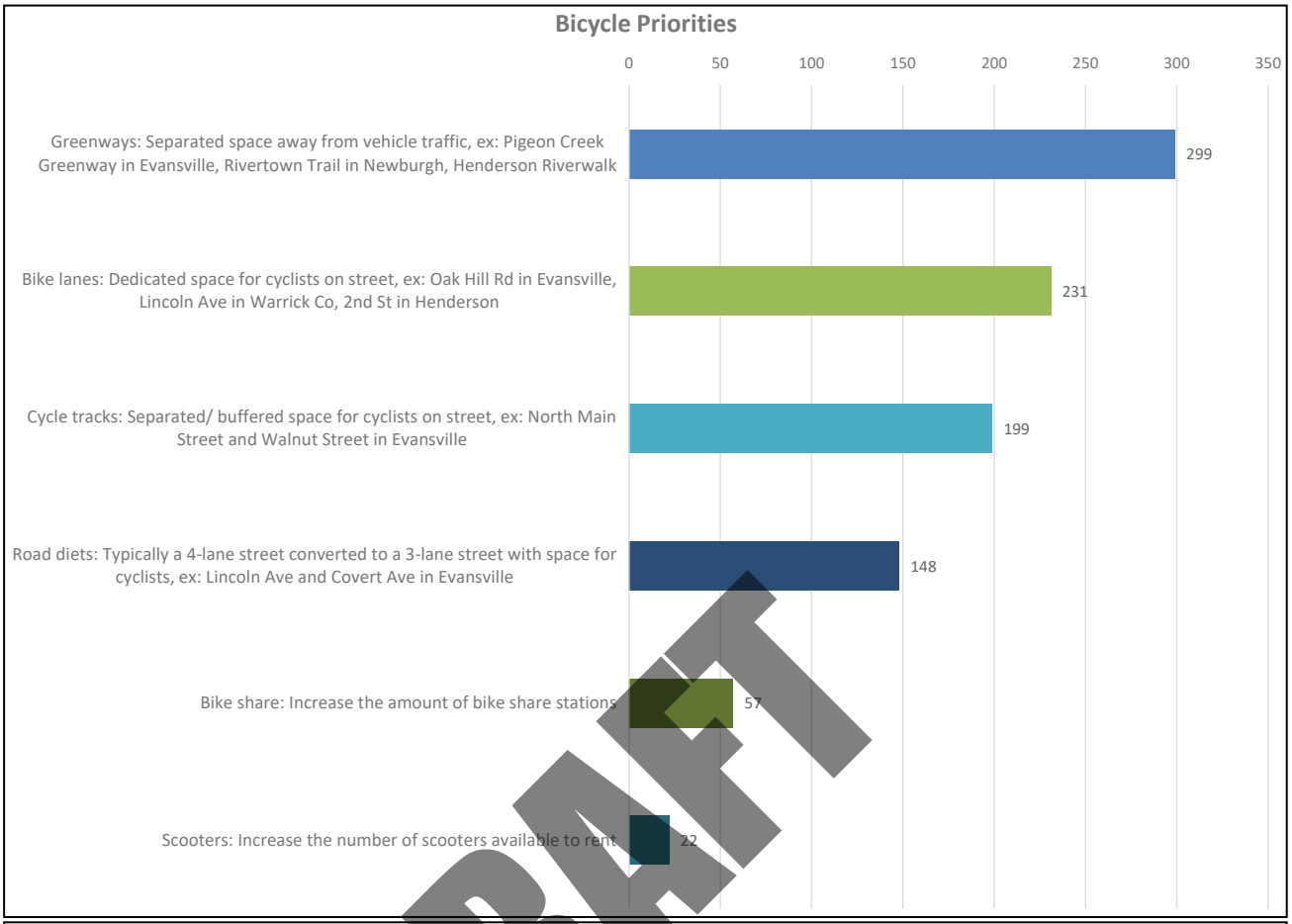


Figure D.8: Survey Results (Cont.)



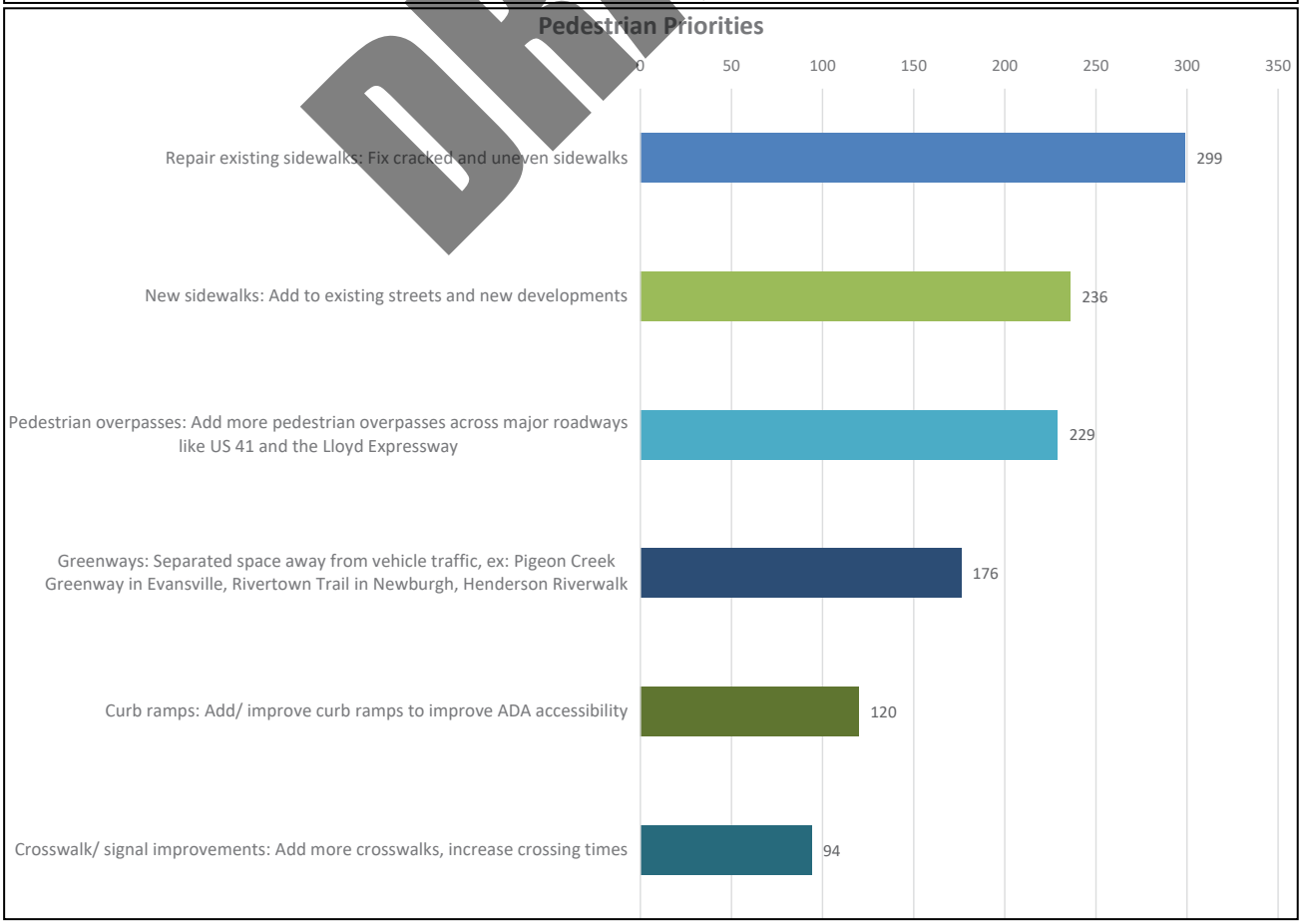
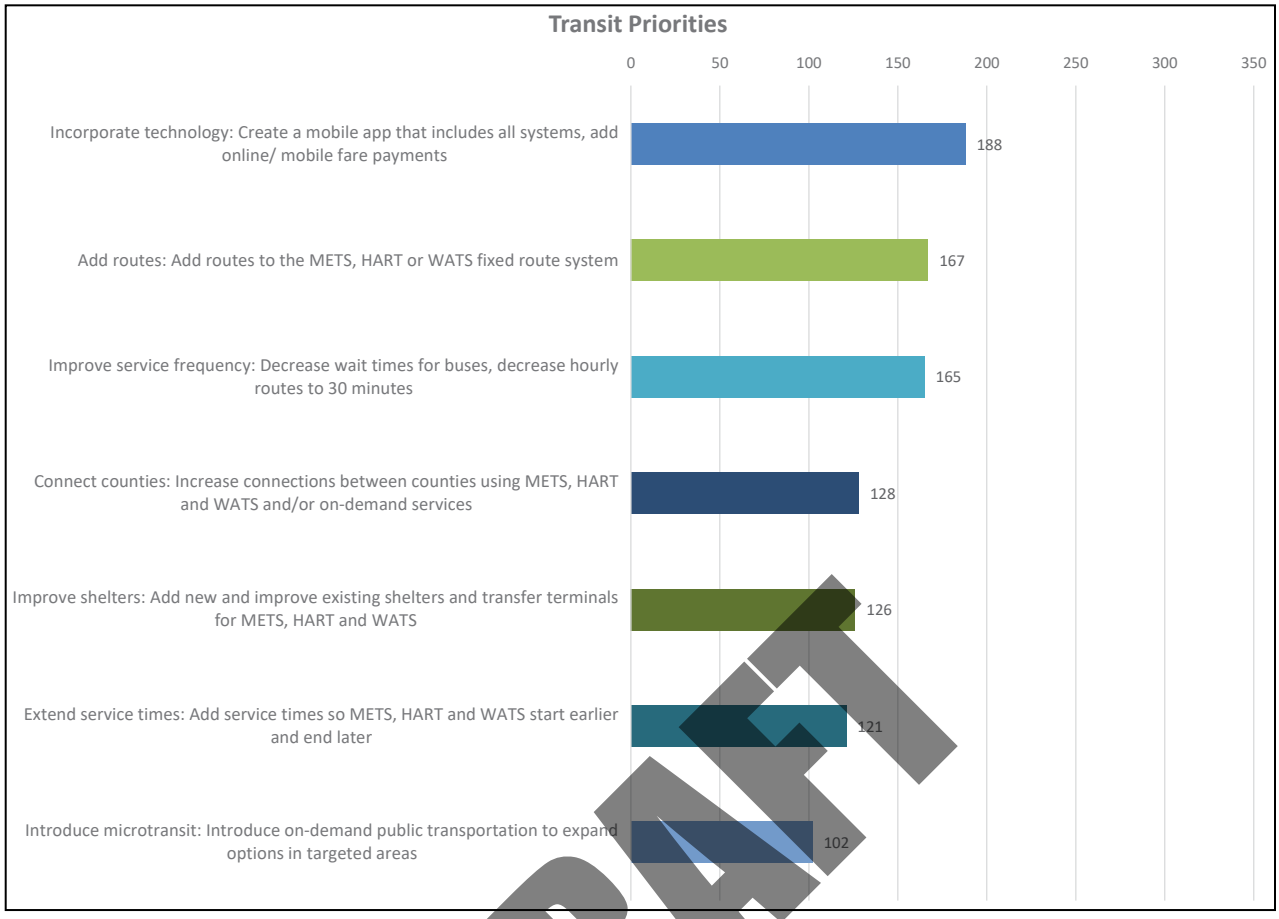
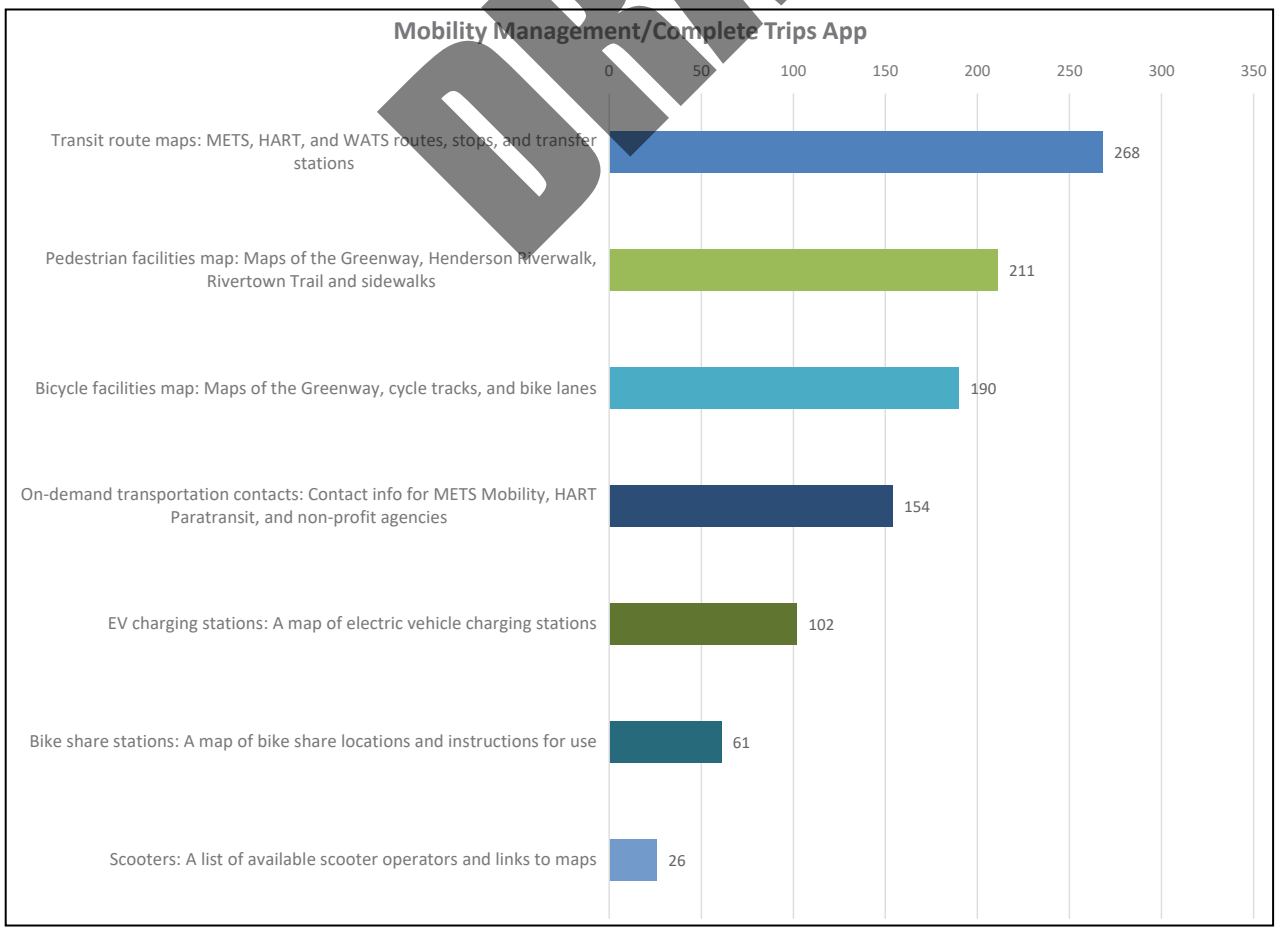


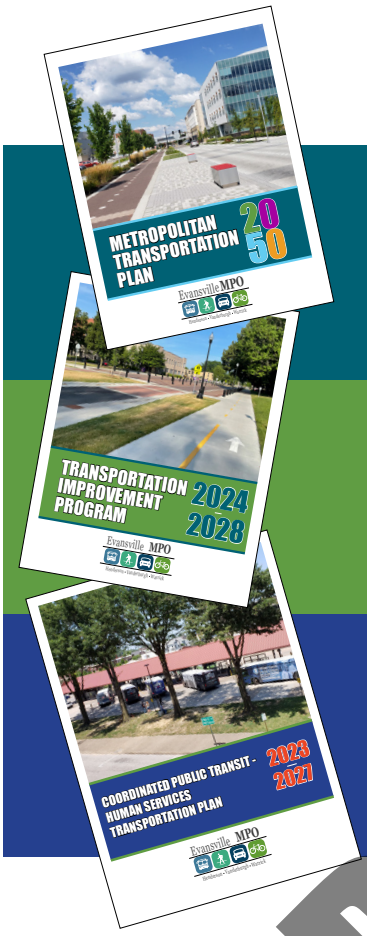
Figure D.8: Survey Results (Cont.)





Evansville MPO

Henderson • Vanderburgh • Warrick



The Metropolitan Transportation Plan (MTP) guides the region's decision making related to road, transit, bicycle and pedestrian projects for Vanderburgh, Warrick and Henderson counties. The MTP includes projects through the year 2050.

The Transportation Improvement Program (TIP) identifies short-term projects and funding for Vanderburgh, Warrick and Henderson counties. These projects are to be funded between 2024 and 2028.

The Coordinated Public Transit - Human Services Transportation Plan includes a list of the Section 5310 eligible projects through the FTA that are planned for implementation by either METS, HART, or the area non-profits to help improve transportation access for seniors and individuals with disabilities.

Open Houses

Wednesday, February 8, 2023
4:00pm – 6:00pm
Evansville Central Library or Henderson County Public Library

Virtual Open Houses are available by appointment. Email avarshochi@evansvillempo.com to schedule a time. Times are available February 7, 8 or 9 from 9:00am - 1:00pm.

- Visit the MPO's website at evansvillempo.com or scan the QR code to view and/or comment on the draft plans.
- Draft copies and comment sheets are available at the MPO office, Evansville Central Library, Henderson County Public Library, and Bell Road Library in Newburgh.
- Comments will be accepted through **February 24, 2023**.

The EMPO will provide reasonable accommodations to individuals with a disability who wish to attend an open house. Because this may require outside assistance, please make requests at least one day prior to the scheduled meeting by calling the MPO office at 812-436-7833 or by email at mschriefer@evansvillempo.com.

Evansville MPO

Henderson • Vanderburgh • Warrick

El Plan de Transporte Metropolitano (MTP) orienta la toma de decisiones de la región relacionadas con carreteras, tránsito, bicicletas y proyectos peatonales para Vanderburgh, Warrick y Henderson condados El MTP incluye proyectos hasta el año 2050.

El Programa de mejora del transporte (TIP) identifica proyectos a corto plazo y financiación para los condados de Vanderburgh, Warrick y Henderson. Estos proyectos se financiarán entre 2024 y 2028.

El Plan de transporte de servicios humanos y transporte público coordinado incluye una lista de los proyectos elegibles de la Sección 5310 a través de la FTA que están planificados para ser implementados por METS, HART o las organizaciones sin fines de lucro del área para ayudar a mejorar el acceso al transporte para personas mayores y personas con discapacidades.

Casas abiertas

miercoles, febrero 8, 2023

4:00pm – 6:00pm

la Biblioteca Central de Evansville o la Biblioteca Pública del Condado de Henderson

Las jornadas de puertas abiertas virtuales están disponibles con cita previa. Envíe un correo electrónico a avarshochi@evansvillempo.com para programar una cita. Los horarios están disponibles el 7, 8 o 9 de febrero de 9:00 am a 1:00 pm.

- Visite el sitio web de la MPO en evansvillempo.com o escanee el código QR para ver y/o comentar sobre los planes preliminares.
- Los borradores y las hojas de comentarios están disponibles en la oficina de la MPO, la Biblioteca Central de Evansville, la Biblioteca Pública del Condado de Henderson y la Biblioteca Bell Road en Newburgh.
- Se aceptarán comentarios hasta el **24 de febrero de 2023**.

El EMPO proporcionará adaptaciones razonables a las personas con discapacidad que deseen asistir a una jornada de puertas abiertas. Debido a que esto puede requerir asistencia externa, haga las solicitudes al menos un día antes de la reunión programada llamando a la oficina de la MPO al 812-436-7833 o por correo electrónico a mschriefer@evansvillempo.com.

E PUBLIC COMMENTS

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Asset management is a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair (SOGR) over the lifecycle of the assets at minimum practicable cost (23 U.S.C. 101(a)(2)). The MPO, in coordination with Local Public Agencies and transit agencies, have developed asset management strategies for roadways, bridges, and transit capital assets. Maintaining an inventory of assets and determining asset condition over time will help the region use funding as efficiently as possible.

F ASSET MANAGEMENT

Regional Pavement Management System

The Regional Pavement Management System (RPMS) is a tool utilized to collect and monitor current pavement condition, as well as evaluate and prioritize pavement maintenance, rehabilitation and repair strategies. When appropriately implemented, the RPMS provides decision-makers with the necessary data for understanding the long-term consequences of short-term budgeting decisions.

The Evansville MPO implemented a pavement management system to assist decision makers in determining the most cost-effective approaches to address the region's roadway conditions. Pavement condition data has been collected and analyzed since 2014 in order to help identify the needs of the MPO region. The types of pavement data collected include pavement rutting and pavement distress data. This data is used to determine the Pavement Condition Index (PCI), an industry standard used to indicate the general condition of pavement. The PCI is figured based on a range from 100 to 0 (100 being excellent condition and 0 being failed condition), Figure F.1 shows this scale according to the industry standard set by ASTM D6433-07.

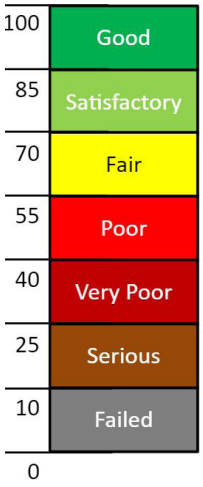
Pavement Condition

The MPO pavement condition data is reported in PCI format for the locally maintained roads in the MPO area. The data included in the section is from two rounds of data collection, done in 2014 and again in 2018. Table F.1 shows the breakdown of the 2,244 miles of roadway in the three MPO area counties, including the cities and town within the counties. The overall average for the EMPO area was 63 on the ASTM PCI scale, which rates as Fair (PCI rating 70-56). Figure F.2 shows the PCI of the MPO region.

Table F.2 shows that 61% of the region's local roadways rate as Fair or higher, showing that the majority of the MPO network falls into preventative pavement plans instead of more costly restorative pavement plans. Figure F.3 demonstrates pavement condition over time.

Another aspect of the data collected is based on the Functional Class of the roadways. The local roadways are separated into Arterials (Other Principal Arterials and Minor Arterials), Collectors (Major and Minor Collectors) and Residential (Local) classifications. Table F.3 displays the PCI breakdown between the road classifications. The high traffic roads have an overall PCI of 73, which falls into the Satisfactory (PCI rating 85-71) range. This demonstrates that the high traffic volume roads, over 21% of the local (arterial and collector) roads, are in a condition where preventative pavement projects would maintain the Satisfactory PCI rating.

Figure F.1: PCI Scale



The MPO will continue to update and maintain pavement condition data in the Pavement Management System for the region. The MPO will be looking to complete a new round of data collection in 2023 for LPAs in the MPO region. An updated RPMS can be utilized by LPAs to refine the deterioration curves applied to the network when developing maintenance plans and road projects based on pavement condition.

Table F.1: PCI by County

County	Miles	PCI
Vanderburgh	1,088	60
Warrick	748	70
Henderson	408	60
MPO Area	2,244	63

Table F.2: Miles by PCI Rating

PCI	Miles	% of Total
100 - 86 (Good)	468	21.1%
85 - 71 (Satisfactory)	496	22.3%
70 - 56 (Fair)	394	17.7%
55 - 41 (Poor)	387	17.4%
40 - 26 (Very Poor)	296	13.3%
25 - 11 (Serious)	109	4.9%
10 - 0 (Failed)	94	4.2%

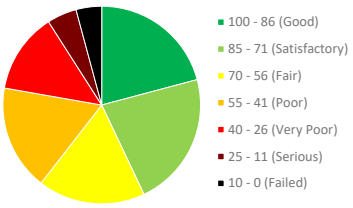


Table F.3: PCI by Road Functional Classification

Facility Type	PCI	Lane Miles	% Lane Miles
Arterial	75	124	5.6%
Collector	71	360	16.2%
Residential	61	1760	79.2%

Figure F.2: Pavement Condition

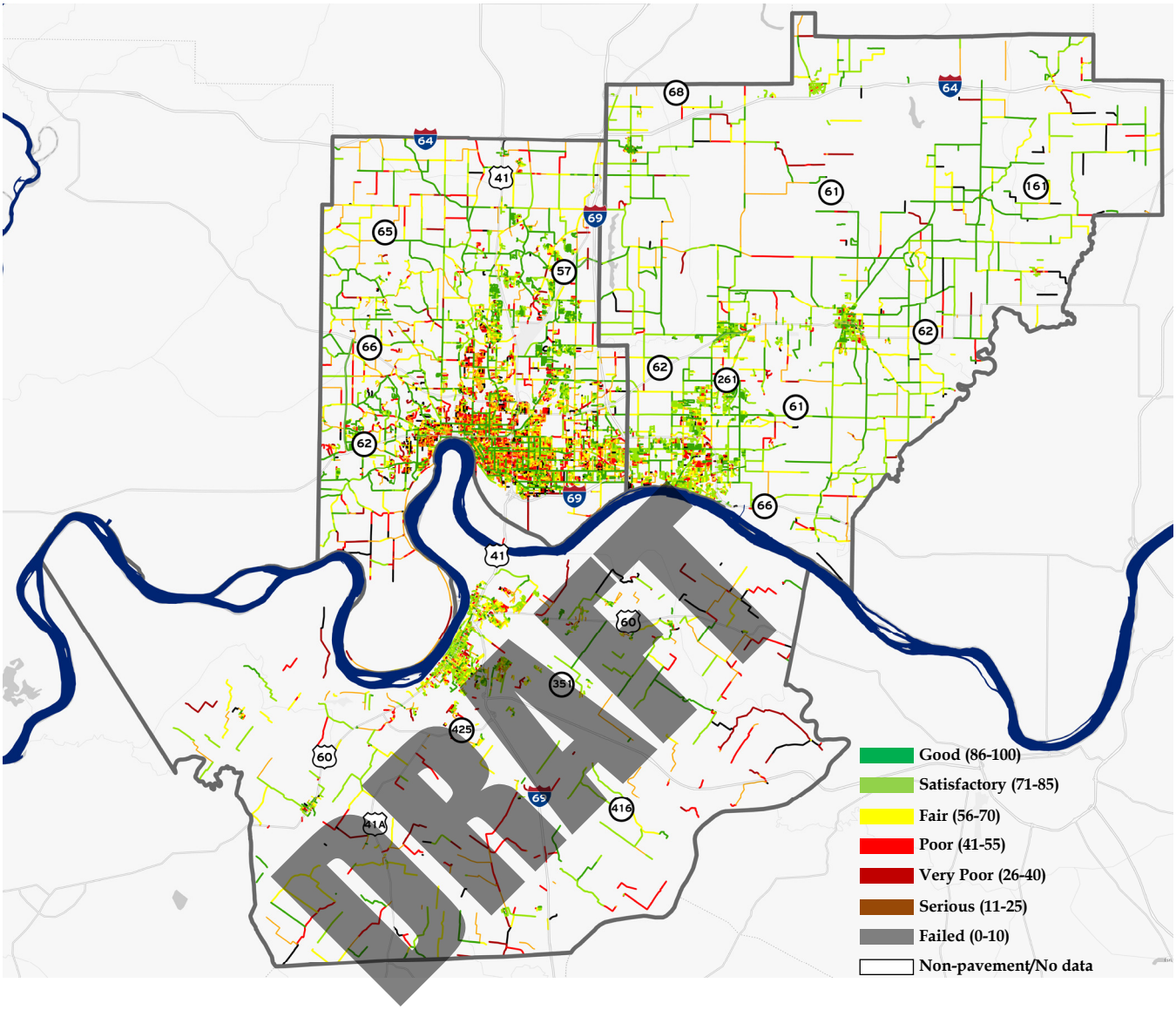
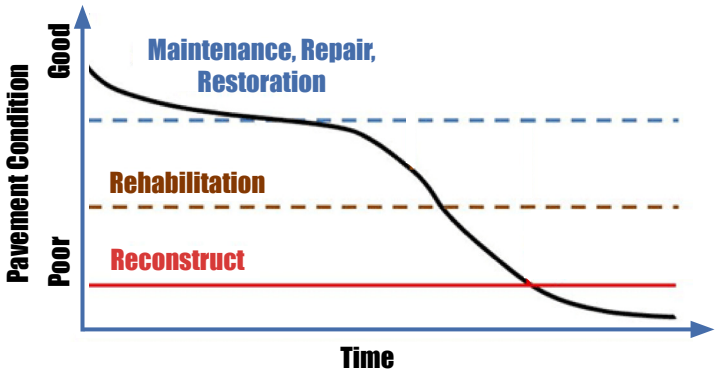


Figure F.3: Pavement Condition Over Time



Bridges

The National Bridge Inspection Standards published in the Code of Federal Regulations (23 CFR 650.3) give the following definition:

A highway bridge is defined as a structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet (6.1 meters) between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening. Culverts may qualify to be considered "bridge" length.

The National Bridge Inventory (NBI) is the aggregation of structure inventory and appraisal data collected to fulfill the requirements of the National Bridge Inspection Standards. Each State shall prepare and maintain an inventory of all bridges subject to the National Bridge Inspection Standards (NBIS). The three counties in the MPA, Vanderburgh and Warrick counties in Indiana and Henderson County in Kentucky, participate in periodic inspection and appraisals of bridges in the NBI that meets these requirements. Table F.4 shows bridge condition statistics for the three counties.

Table F.4: PCI by Road Functional Classification

		All	Good	Fair	Poor	% Poor
2022	Vanderburgh	278	135	131	12	4%
2021		278	138	128	12	4%
2020		278	133	137	8	3%
2019		278	138	131	9	3%
2018		277	135	135	7	3%
2022	Warrick	196	92	95	9	5%
2021		196	89	98	9	5%
2020		196	91	95	10	5%
2019		196	92	93	11	6%
2018		196	93	92	11	6%
2022	Henderson	183	24	149	10	5%
2021		183	23	149	11	6%
2020		184	55	117	12	7%
2019		183	55	115	13	7%
2018		183	89	82	12	7%

Transit Asset Management

Transit asset management (TAM) is the practice of prioritizing funding based on the condition and maintenance requirements of transit assets, including vehicles, equipment, and facilities. Properly tracking asset conditions helps transit agencies determine the most cost-effective process for operating, maintaining, rehabilitating, and replacing assets. Tracking the age and mileage of vehicles and physical condition of equipment and facilities aids transit agencies in maintaining a state of good repair.

In July of 2016, the FTA published the Transit Asset Management final rule (49 CFR part 625) that established minimum asset management requirements for transit providers. The rule included a deadline of October 2018 for the completion of an initial Transit Asset Management (TAM) Plan by all transit providers and requires a full update at least once every four years. As operators of less than 100 vehicles for their fixed route systems in the same urbanized area, METS and HART were allowed to develop a Group TAM Plan. The Evansville MPO worked closely with METS and HART to develop the initial 2018-2022 Transit Asset Management Plan, which was completed on September 21, 2018. The updated 2022-2026 TAM Plan was completed on October 31, 2022. The MPO, METS, and HART will continue to work together on future updates.

The Transit Asset Management Plan includes a summary of all of the capital assets of both METS and HART, including a condition assessment of those assets. The appendix of the TAM Plan includes a detailed table of all vehicles, equipment, and facilities with age, mileage, condition, replacement cost, and anticipated replacement year. The plan also includes performance measures and targets that will be updated annually and a list of the tools that help METS and HART determine replacement times. The TAM Targets are shown in Appendix E: Performance Measures.

The full Transit Asset Management Plan can be viewed on the Evansville MPO website at evansvillempo.com/links.html. Click on Multi-Modal under Publications to see a full list of transit related plans.

State Plans

INDOT and KYTC have developed Transportation Asset Management Plans (TAMP) that document the asset management practices for the state roads and bridges including goals, performance targets, financial plans and investment strategies. Contact INDOT or KYTC for a copy of their TAMP documents.

Transportation Safety Planning

The mission of Transportation Safety Planning (TSP) is to reduce transportation fatalities and serious injuries by supporting comprehensive, system-wide, multimodal, data-driven, and proactive regional and statewide transportation planning processes that integrate safety into surface transportation decision-making. TSP is a comprehensive, system-wide, multimodal, proactive process that better integrates safety into surface transportation decision-making. Federal law requires that the State and metropolitan transportation planning processes be consistent with Strategic Highway Safety Plans. It is important for the processes to consider projects and strategies to increase the safety of the transportation system for motorized and non-motorized users.

G SAFETY & SECURITY

As with prior transportation bills, the Infrastructure Investment and Jobs Act retains safety as integral planning factor with dedicated funding sources, such as the Highway Safety Improvement Program (HSIP) and the Safe Streets for All Program (SS4A) funds. The MPO can utilize these funds to increase the safety of the transportation system for motorized and non-motorized users. State crash data is used to help determine where these funds are best utilized. Data is downloaded from the state databases yearly for each county within the MPA. The datasets are imported into the MPO's GIS database and the geographical representations are corrected as appropriate. Private property crashes, crashes that take place entirely on private property such as parking lots or in apartment complexes, are removed. Generalized crash statistics can be used for targeted educational advertising and other educational media. It can also guide planners to other necessary reviews such as system-wide intersection or segment analyses where right angle and rear end or lane departures crashes are predominant. Lane departure crashes include head on, opposite direction and same direction sideswipes, and running off road crashes. Tables G.1 through G.3 show the 5-year general crash statistics for Vanderburgh, Warrick and Henderson counties. The tables have been condensed to show the top four crash types and the top ten crash factors.

Table G.1: Vanderburgh County Crash Statistics

Vanderburgh County					
Manner of Collision	**2016**	**2017**	**2018**	**2019**	**2020**
Rear End	2,242	2,082	2,009	2,054	984
Lane Departures	1,522	1,389	1,435	1,490	1,044
Right Angle	1,227	1,230	1,132	1,060	757
Left Turn	258	264	290	372	272
All Others	701	590	675	726	357
Primary Factor	**2016**	**2017**	**2018**	**2019**	**2020**
Following Too Closely	1,990	1,850	1,798	1,855	821
Failure to Yield Right of Way	1,302	1,203	1,241	1,279	790
Ran Off Road	522	476	499	500	393
Disregard Signal/Reg Sign	388	424	357	327	309
Improper Lane Usage	297	303	288	317	172
Other (Driver)	253	209	232	207	64
Unsafe Backing	234	210	205	212	90
Improper Turning	184	177	191	202	127
Animal/Object in Roadway	147	168	137	189	136
Left of Center	143	119	113	117	69
All Others	518	463	483	487	383

Table G.2: Warrick County Crash Statistics

Warrick County					
Manner of Collision	**2016**	**2017**	**2018**	**2019**	**2020**
Lane Departures	416	368	375	445	346
Rear End	299	312	318	319	230
Collision with Deer	235	262	276	254	200
Right Angle	143	152	142	188	141
All Others	224	199	207	209	154
Primary Factor	**2016**	**2017**	**2018**	**2019**	**2020**
Animal/Object in Roadway	256	283	288	263	227
Following Too Closely	219	235	246	265	170
Failure to Yield Right of Way	217	193	198	233	151
Ran Off Road	136	135	146	166	115
Unsafe Backing	54	48	51	57	34
Disregard Signal/Reg Sign	45	54	46	51	47
Improper Turning	35	35	35	60	43
Speed Too Fast For Weather Condition	37	33	42	36	16
Unsafe Speed	36	34	27	31	35
Driver Distracted	40	30	26	21	32
All Others	359	318	300	319	273

Table G.3: Henderson County Crash Statistics

Henderson County					
Manner of Collision	**2016**	**2017**	**2018**	**2019**	**2020**
Single Vehicle	458	394	441	402	417
Rear End	423	412	411	359	289
Lane Departures	341	332	329	292	344
Angle	332	276	317	359	293
All Others	138	126	90	92	195
Directional Analysis	**2016**	**2017**	**2018**	**2019**	**2020**
Rear End	377	277	204	168	121
Collision With Fixed Object	150	126	136	146	131
1 Vehicle Entering/Leaving Entrance	117	94	139	155	119
Other Roadway or Mid-Block Collision	75	134	153	121	133
1 Vehicle Parked Position (Not Parking Lot/Driveway)	148	117	113	119	112
Sideswipe Collision - Same Direction	140	98	113	102	91
Collision With Animal (any)	100	99	109	107	119
Angle Collision - Other	29	56	140	162	125
Other Intersection Collisions	3	37	114	115	84
Ran Off Roadway (1 Vehicle with Earth Embankment/Ditch)	119	47	72	50	37
All Others	454	313	310	233	206

Intersection Crash Analysis

Currently the MPO conducts intersection crash analyses in Vanderburgh, Warrick and Henderson counties. For analysis in Indiana, the MPO uses INDOT's RoadHAT (Road Hazard Analysis Tool) software to calculate an Icc (Index of Crash Cost) and Icf (Index of Crash Frequency) as well as a basic crash rate and crash severity calculations. In Kentucky, only the crash rate and crash severity rates are calculated.

To help identify intersections for the crash analysis review, the MPO selects intersections based on the following primary factors:

- Intersections with fatality or incapacitating injury occurrences
- Intersections with possible injury occurrences
- Intersections with high overall number of crashes

During the intersection identifying process, LPAs may submit intersections with safety concerns for review.

Once the intersections are identified, additional data for the selected locations is collected. This includes traffic count collection and categorizing the crashes per the selected intersections. Intersections with an Icc of 2.00 or greater will automatically be included in the subsequent review period for continued monitoring. Each review period includes three years of crash data. Studies have been completed for 2009-2011, 2012-2014, 2015-2017 and 2018-2020. The resulting crash rates and crash severity rates are used to see how intersections change over time. Due to the periodic changes in the RoadHAT software, the Icc is not used for trend analyses. Table G.4 shows the intersection crash rates, and Table G.5 shows intersection crash severity.

Segment Crash Analysis

The MPO has a roadway segment crash analysis for Vanderburgh and Warrick counties. The same principles apply for the selection of the segments for review as were used for the intersection crash analyses. The analysis started with the years 2013-2015 and most current data is for 2016-2018. The results of the 2013-2015 and the 2016-2018 study are shown in Table G.6.

Table G.4: Intersection Crash Rates

LPA	Intersection	CR 12-14	CR 15-17	CR 18-20
Evansville	Burkhardt Rd & Virginia St	3.06	4.32	2.81
Warrick	Bell Oaks Dr & Wyntree Dr	1.60	1.17	2.72
Warrick	Folsomville Rd & Barren Fork Rd			2.69
Evansville	Columbia St & Fares Av			2.43
Evansville	Green River Rd & Lynch Rd	2.41	3.23	2.41
Vanderburgh	Baseline Rd & Husky Wa			2.39
Evansville	Fourth St & Mulberry St			2.23
Warrick	Yankeetown Rd & New Hope/Roeder Rd			2.11
Evansville	Boeke Rd & Washington Av	1.18	2.85	2.06
Evansville	Covert Av & Vann Av	1.79	2.39	2.03
Evansville	Vann Av & Washington Av	2.49	3.01	1.96
Evansville	Washington Av & Weinbach Av	2.29	2.00	1.92
Evansville	Green River Rd & Lincoln Av		2.61	1.92
Evansville	Green River Rd & Virginia St	1.98	3.50	1.82
Warrick	Vann Rd & Anderson Rd		2.27	1.79
Evansville	Green River Rd & Vogel Rd	1.77	2.62	1.74
Evansville	First Av & Columbia St	0.99	1.79	1.50
Evansville	First Av & Franklin St	1.69	1.94	1.50
Evansville	First Av & Buena Vista Rd		2.73	1.45
Evansville	Covert Av & Green River Rd	0.70	2.54	1.41
Evansville	Garvin St & John St	7.19	9.31	1.35
Evansville	Covert Av & Weinbach Av	1.81	2.35	1.30
Vanderburgh	St Joseph Av & Allens Ln	0.91	1.19	1.28
Vanderburgh/Evansville	Green River Rd & Hirsch Rd			1.27
Vanderburgh/Evansville	Red Bank Rd & Pearl Dr	1.39	1.39	1.27
Evansville	Burkhardt Rd & Lynch Rd			1.24
Darmstadt	Boonville-New Harmony Rd & St Joseph Av		1.83	1.23
Henderson	Elm St & Barker Rd	2.16	0.36	1.19
Warrick	Bell Rd & Bell Oaks Dr (south junction)		1.75	1.14
Evansville	Burkhardt Rd & Columbia St		1.42	0.97
Warrick	Epworth Rd & Gateway Dr	0.65		0.95
Evansville	Lincoln Av & Weinbach Av	1.89	1.78	0.88
Henderson	US Highway 41 & Barret Bl		0.36	0.78
Vanderburgh/Evansville	Covert Av & Fuquay Rd			0.78
Newburgh	Old SR 662/Newburgh Rd & Frame Rd/Yorkshire Rd	1.04	0.56	0.77
Vanderburgh	Harmony Wa & Allens Ln			0.72
Evansville	Newburgh Rd & Washington Av	0.30	2.38	0.69
Vanderburgh	Upper Mt Vernon Rd & Red Bank Rd			0.69
Boonville	Sycamore St & 1st St		2.27	0.61
Evansville	Green River Rd & Spring Valley Rd		1.58	0.57
Vanderburgh	Boonville-New Harmony Rd & Green River Rd	2.89	2.86	0.37
Warrick	Oak Grove Rd & Bell Rd	0.87	UC	0.32
Vanderburgh	Oak Hill Rd & Rode Rd	0.79	0.87	0.30
Newburgh	Jennings St & State St	0.37	0.00	0.24
Henderson County	Corydon Greenlick Rd & Kings Mill Rd		19.71	0.00
Henderson County	Crooked Rd & Chase Rd (north junct)		5.44	0.00

CR - Crash Rate
UC -Under Construction

Not reviewed during the analysis period
Intersections with Icc > 2.00

Table G.5: Intersection Crash Severity

LPA	Intersection	CS 12-14	CS 15-17	CS 18-20
Warrick	Folsomville Rd & Barren Fork Rd			2.69
Warrick	Yankeetown Rd & New Hope/Roeder Rd			1.27
Evansville	Columbia St & Fares Av			1.04
Warrick	Bell Oaks Dr & Wyntree Dr	0.64	0.21	0.91
Vanderburgh	Baseline Rd & Husky Wa			0.80
Evansville	Covert Av & Weinbach Av	0.59	0.69	0.74
Vanderburgh	Harmony Wa & Allens Ln			0.72
Evansville	Boeke Rd & Washington Av	0.37	0.79	0.70
Evansville	Washington Av & Weinbach Av	0.41	0.68	0.70
Evansville	Covert Av & Vann Av	0.65	0.75	0.68
Evansville	Green River Rd & Lynch Rd	0.46	0.72	0.65
Evansville	First Av & Buena Vista Rd		0.65	0.63
Evansville	Vann Av & Bellemeade Av		0.81	0.63
Evansville	Burkhardt Rd & Lynch Rd			0.62
Evansville	Vann Av & Washington Av	0.80	0.93	0.58
Evansville	Fourth St & Mulberry St			0.56
Evansville	Green River Rd & Lincoln Av		0.52	0.50
Evansville	First Av & Franklin St	0.54	0.68	0.49
Evansville/Vanderburgh	Red Bank Rd & Pearl Dr			0.48
Vanderburgh/Evansville	Red Bank Rd & Pearl Dr	0.10	0.15	0.48
Evansville	Lincoln Av & Weinbach Av	0.44	0.39	0.47
Evansville	Burkhardt Rd & Virginia St	0.69	0.97	0.45
Evansville	Garvin St & John St	3.73	3.56	0.44
Evansville	First Av & Columbia St	0.46	0.49	0.44
Warrick	Vann Rd & Anderson Rd		0.93	0.41
Evansville	Green River Rd & Vogel Rd	0.51	0.49	0.34
Vanderburgh	Upper Mt Vernon Rd & Red Bank Rd			0.34
Warrick	Bell Rd & Bell Oaks Dr (south junction)		0.16	0.34
Boonville	Sycamore St & 1st St		0.57	0.31
Darmstadt	Boonville-New Harmony Rd & St Joseph Av		0.91	0.31
Vanderburgh	St Joseph Av & Allens Ln	0.23	0.25	0.29
Evansville	Green River Rd & Virginia St	0.31	0.51	0.27
Evansville	Covert Av & Green River Rd	0.23	0.52	0.25
Evansville	Newburgh Rd & Washington Av	0.08	0.50	0.20
Evansville	Burkhardt Rd & Columbia St		0.58	0.19
Vanderburgh/Evansville	Covert Av & Fuquay Rd			0.19
Warrick	Epworth Rd & Gateway Dr	0.10		0.17
Newburgh	Old SR 662/Newburgh Rd & Frame Rd/Yorkshire Rd	0.16	0.00	0.15
Evansville	Green River Rd & Spring Valley Rd		0.28	0.13
Newburgh	Jennings St & State St	0.00	0.00	0.12
Warrick	Oak Grove Rd & Bell Rd	0.24	UC	0.08
Vanderburgh	Boonville-New Harmony Rd & Green River Rd	1.39	1.13	0.07
Henderson	Elm St & Barker Rd	0.36	0.00	0.00
Henderson County	Corydon Greenlick Rd & Kings Mill Rd		6.57	0.00
Henderson County	Crooked Rd & Chase Rd (north junct)		5.44	0.00
Vanderburgh	Oak Hill Rd & Rode Rd	0.17	0.52	0.00

CS - Crash Severity
UC -Under Construction

Not reviewed during the analysis period
Intersections with Icc > 2.00

Table G.6: Segment Crash Analysis

LPA	Street	Begin Pt	End Pt	CR 13-15	CS 13-15	Icc 13-15	Icf 13-15	CR 16-18	CS 16-18	Icc 16-18	Icf 16-18
Evansville	1st Av	Allens Ln	Buena Vista Rd	288	104	2.69	1.47	355	101	2.89	2.00
Vanderburgh	Darmstadt Rd	city limits	Evergreen Rd					367	85	1.78	3.43
Evansville	Stringtown Rd	Pfeiffer Rd	Buena Vista Rd					355	127	1.78	2.34
Evansville	Green River Rd	SR 62/Morgan Av	Theater Dr	185	54	1.52	2.48	188	50	1.64	2.28
Vanderburgh	Wimberg Rd	Kratzville Rd	St Joseph Av	807	255	1.57	3.33	967	132	1.62	3.66
Vanderburgh	Green River Rd	SR 66/Lloyd Expy	Virginia St	391	11	3.42	4.46	257	40	1.57	3.43
Evansville	Green River Rd	Lincoln Av	SR 66/Lloyd Exp	273	84	2.22	1.86	228	28	1.53	1.52
Vanderburgh	St Joseph Av	Mill Rd	Wimberg Rd	186	62	1.54	2.83	251	94	1.48	2.74
Evansville	Green River Rd	Vogel Rd	SR 62/Morgan Av	233	78	2.84	3.11	255	42	1.38	3.10
Vanderburgh	Old State Rd	Mount Pleasant Rd	Hillsdale Rd					364	109	1.29	1.77
Warrick	State St	Bell	Jennings					385	59	1.22	0.10
Vanderburgh	Covert Av	city limits	Fuquay Rd					52	35	1.22	-0.02
Evansville	Riverside Dr	Court St	Fulton Av					145	54	1.10	1.39
Newburgh	Old SR 261	S of Marywood	Bell Rd					220	147	1.07	1.32
Vanderburgh	Red Bank Rd	Hogue Rd	Upper Mt Vernon Rd	960	320	3.05	4.00	468	104	1.06	2.58
Warrick	Boner	Eble	Red Brush					3148	3148	1.04	1.06
Vanderburgh	Boonville-New Harmony Rd	Browning Rd	Old State Rd	267	83	1.55	2.01	196	82	0.99	1.43
Newburgh	Filmore	3rd	dead end					13131	13131	0.97	0.95
Warrick	Herr	Bell Rd	Castle Garden Rd					2124	2124	0.97	0.90
Boonville	Poplar St	Fourth St	Boonville city limits					1014	253	0.97	0.74
Vanderburgh	Broadway Av	Schutte Rd	Old Mt Vernon Rd					183	61	0.96	0.71
Evansville	Pfeiffer Rd	Kentucky Av	Stringtown Rd					661	330	0.95	0.57
Warrick	Old Boonville	Vanderburgh county line	Stevenson Station					160	160	0.92	0.13
Warrick	Leslie	Folsomville	Taylorville					406	406	0.90	0.00
Evansville	Indiana St	Congress Av	Stockwell Rd					1053	351	0.89	1.43
Warrick	Martin	Outer Lincoln	Sharon	63	0	-0.29	-0.18	63	63	0.87	-0.18
Vanderburgh	Orchard Rd	Darmstadt Town limits	SR 65/Big Cynthiana Rd					324	194	0.79	0.14
Vanderburgh	Darmstadt Rd	Evergreen Rd	Darmstadt Town limits					197	37	0.77	0.60
Vanderburgh	Baseline Rd	SR 65/Big Cynthiana Rd	Owensville Rd					740	617	0.76	-0.03
Vanderburgh	Petersburg Rd	Boonville-New Harmony Rd	Schlensker Rd					157	78	0.75	0.98
Evansville	Virginia St	US Highway 41	Garvin St					197	116	0.69	0.04
Vanderburgh	Boonville-New Harmony Rd	Darmstadt Town limits	SR 65/Big Cynthiana Rd					126	54	0.66	0.11
Evansville	Mill Rd	Stringtown Rd	Kentucky Av					426	166	0.58	0.12
Warrick	Hewins	Edwards	McCool					2221	2221	0.56	0.80
Evansville	Kratzville Rd	Wimberg Rd	First Av					238	143	0.56	0.44

Table G.6: Segment Crash Analysis (Cont.)

LPA	Street	Begin Pt	End Pt	CR 13-15	CS 13-15	Icc 13-15	Icf 13-15	CR 16-18	CS 16-18	Icc 16-18	Icf 16-18
Evansville	Lohoff Av	First Av	Kratzville Rd					646	646	0.48	0.22
Darmstadt	Boonville New Harmony Rd	Darmstadt Rd	St Joseph Av					135	34	0.47	0.74
Evansville	Boonville New Harmony Rd	Hoing Rd	Darmstadt Rd					130	65	0.44	0.66
Darmstadt	Yankeetown Rd	Boonville city limits	Roeder	137	61	0.36	-0.2	203	51	0.37	-0.05
Warrick	High Pointe Dr	Bell	Park Place					386	0	0.20	0.58
Warrick	Bell Oaks	Bell	Old SR 261					281	51	0.20	0.10
Evansville	Kratzville Rd	Mill Rd	Wimberg Rd					203	87	0.13	-0.10
Boonville	Washington	Gardner	Cambridge					339	68	0.10	-0.29
Chandler	Washington	Gardner	Cambridge					339	68	0.10	-0.29
Vanderburgh	Peerless Rd	Hogue Rd	Upper Mt Vernon Rd					193	97	0.08	0.20
Warrick	Old SR 261	SR 66	Lincoln					190	0	0.04	0.24
Newburgh	Moore	3rd	8th					489	0	0.01	0.36
Evansville	Virginia St	Burkhardt Rd	Green River Rd					158	42	-0.02	-0.13
Evansville	Covert Av	Green River Rd	Vann Av					178	42	-0.05	-0.14
Evansville	Stockwell Rd	SR 66/Lloyd Expy	SR 62/Morgan Av					157	28	-0.10	-0.14
Evansville	Vogel Rd	Burkhardt Rd	Green River Rd					131	20	-0.19	-0.19
Warrick	Pelzer	Rockport	New Hope					197	99	-0.23	-0.21
Evansville	Petersburg Rd	US Highway 41	Stringtown Rd					76	38	-0.27	-0.29
Warrick	Phillips Rd	Folsomville Rd	Folsomville Degonia Rd					135	135	-0.32	-0.44
Warrick	Saint Johns	Elberfeld Rd	Cornell Rd					103	77	-0.42	-0.45

Road Safety Spot Reviews

Additional safety reviews can be requested by a LPA on a local facility and are generally initiated when a complaint is received by another agency or the public. Most of the LPAs participate in an informal Road Safety Audit where various stakeholders are asked to contribute to the discussion by offering on-site review and/or experiences in dealing with the particular issue at hand. These reviews can include law enforcement, city/county engineers, highway departments, and signal timing experts, but has also included urban forestry professionals, etc. In these reviews crash data is always considered, and recommendations are made in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), or recommendations and guidelines in AASHTO's A Policy on Geometric Design of Highways and Streets (The Green Book), ITE's Traffic Engineering Handbook, and the many and various publications by the FHWA. In Indiana, if a review results in an Icc of 2.00 or greater fovvcccccutgr an intersection or a roadway segment, the project will be added to the appropriate study list for continued monitoring.

Transportation Security

It is essential to consider security and emergency management as the transportation network grows and the network connectivity is improved. Maintaining and securing the transportation system is important because disruption to the transportation system can negatively impact the region's economy and quality of life. MTP security goals and objectives are outlined in Chapter 6 of this document along with the other transportation planning goals. The Evansville MPO also helps coordinate safety efforts with localities, adopts the state's safety targets and tracks the progress, provides information on federal/state funding opportunities relating to safety/security/ emergency management to local organizations, and provides data and resources to the localities that is vital for transportation security.

Emergency Planning

Under the guidance of the Federal and State Departments of Homeland Security and the Federal and State Emergency Management Agencies (EMAs) the county-wide EMAs for Vanderburgh, Warrick and Henderson counties provide emergency planning for their respective counties. The Evansville MPO coordinated with the EMA's during the development of the MTP.

The EMAs in each of the three counties, with the coordination of all the government agencies responsible for the security of the region, have adopted county-wide Comprehensive Emergency Management Plans (CEMP). A CEMP documents the county level emergency planning process that establishes policies and procedures needed to prepare for, respond to, recover from, and mitigate the impacts of all types of natural, technological, and criminal/hostile disasters. The CEMPs followed the emergency support function concept and identified the Federal Emergency Management Agency's support functions and the roles and responsibilities of the primary coordinating agencies for each support function. All three CEMPs identify the transportation system as a key infrastructure for carrying out emergency response activities in the region.

Various Federal, State and local governmental agencies provide the day to day security for all four modes of transportation in the Evansville MPO region. These agencies also provide the emergency response in the event of an unexpected disaster.

Alternative Modes Safety and Security

Transit

Safety and security are vital to public transportation systems to make sure transit riders have the safest trips possible and routes continue to run on time. METS, HART, and WATS have several safety procedures in place to ensure system safety. Driver training helps new drivers understand all of the safety procedures required and annual driver training provides a refresher on all current safety measures. Proper and continual maintenance is important to keep the buses running efficiently and safely. Daily checks by drivers and/or maintenance staff ensures that the vehicles will operate effectively each day. If any issues are found during daily checks or routine maintenance, the buses are immediately removed from service until a solution is found.

Security not only helps the transit providers ensure their equipment remains safe, it also helps passengers feel safe on the buses. All METS, HART, and WATS buses have security cameras onboard. These cameras help keep passengers and drivers safe, as well as protect the transit providers from any baseless complaints. Most METS buses have driver barriers to protect the drivers. Cameras,

fencing, and building security at the garage/ administration buildings, ensures that the equipment and employees remain safe at all times.

On July 19, 2018, the FTA published the Public Transit Agency Safety Plan (PTASP) final rule, which requires certain public transportation operators to develop safety plans. The rule became effective on July 19, 2019 and agencies were required to complete an initial PTASP by July 20, 2021. The Evansville MPO began working with METS and HART in 2019 to develop their first Public Transit Agency Safety Plans. The PTASP identifies the safety measures taken by each agency, including a Safety Management Policy, safety hazard identification, safety performance monitoring, and safety promotion. The PTASP also includes safety performance measures, as well as safety targets which are updated annually. HART approved their first PTASP in December 2020. METS approved their first PTASP in March 2021. Due to required changes from the new transportation bill, each agency made updates and completed their second PTASP in December 2022.

Bicycle and Pedestrian

Safety is a concern for any community when designating bicycle and pedestrian facilities. Ensuring the safety of bicyclists and pedestrians is a difficult task because doing so requires all roadway users to make sound judgements. Facilities should be designed in a way that will encourage users to make safe decisions, but sometimes accidents are not avoidable.

Table G.7 shows past crash statistics involving bicyclists and pedestrians in the three-county region. These numbers show crashes that were reported in public right-of-way and does not include crashes that may have happened on private property, such as a pedestrian being hit in a grocery store parking lot.

Security for the bike and pedestrian networks is ensuring that people feel free of danger when using the bike and pedestrian facilities. It is important for facilities to be well lit and open. Specific areas, such as those along shared use paths, could use call boxes to help people feel more secure. The Hi-Rail corridor is one example of a well-lit multi-use path, with solar lighting along much of the route. The USI-Burdette Park trail includes call boxes to help trail users feel safe. In downtown Evansville, the police presence in cars and on bikes increases the security of sidewalk and Greenway users.

State Plans

Strategic Highway Safety Plans (SHSP), developed by INDOT and KYTC, establish statewide goals, objectives and emphasis areas for improving safety on all public roads. The SHSPs are data-driven documents the encourage partnerships in addressing safety goals and leveraging resources to address safety challenges. The SHSPs and associated documents can be found on the INDOT and KYTC websites.

Table G.7: Bicycle and Pedestrian Crash Statistics

		2012	2013	2014	2015	2016	2017	2018	2019	2020
Bicylces	**Indiana***	33	27	31	37	29	23	29	33	27
	Kentucky	8	9	11	4	7	1	1	5	3
Pedestrians	**Indiana***	56	37	43	34	47	32	40	41	22
	Kentucky	18	12	8	9	13	8	12	14	11

***Indiana includes both Vanderburgh and Warrick counties**

Model Development Summary

The Evansville MPO has developed a new travel demand model in-house. This new model is not an update to the previous EMPO travel demand model. Instead, it was developed as all new code using TransCAD's latest flowchart interface. The only items taken from the previous model are line and zone geometries. It is a traditional four-step travel demand model without a transit component. The transit component did not exist in the previous model, but it will be a component added in the future.

The base year of the model is 2020. Due to the impact of COVID-19 on multiple data sources in year 2020, most base year datasets used in the model are actually from 2019, except for 2020 Decennial Census data. INDOT provided the 2019 AADT (Annual Average Daily Traffic) line layer, which is used as observed traffic data.

H TRAVEL DEMAND MODEL

Trip Generation

Trip generation comprises of trip production, trip attraction and trip balancing.

Trip Production

Trips are categorized in three purposes: HBW (Home-Based Work), HBNW (Home-Based Non-Work) and NHB (Non-Home-Based). Cross-classification method is used for trip production. The cross-classification lookup table is from the NCHRP (National Cooperative Highway Research Program) Report 716. The population data is from 2020 Decennial Census at the census block level and aggregated to the TAZ (traffic analysis zone) level by overlapping the layers. The household characteristic data is from CTPP (Census Transportation Planning Products) data which is originally from ACS (American Community Survey) data. The CTPP data is at the census block group level and aggregated to the TAZ level by overlapping the layers. The HBNW and NHB trip production rates are reduced slightly in the calibration stage.

Trip Attraction

Linear regression method is used for trip attraction. Parameters in the NCHRP Report 716 are used. Employment is categorized in three groups: basic employment, retail employment and service employment. Employment data at NAICS (North American Industry Classification System) sector level is aggregated to these three groups. The data is from the Census Bureau's LEHD (Longitudinal Employer-Household Dynamics) at Census block level and then aggregated to the TAZ level by overlapping the layers. Like other employment data sources, there is "headquartering" issues with employers which have multiple locations but reporting all their employment to a single headquarter location. This issue occurs at a few major governmental employers and has been fixed with coordination with them. These employers include City of Evansville, Vanderburgh County, EVSC (Evansville Vanderburgh School Corporation) and WCSC (Warrick County School Corporation). Student enrollment data from NCES (National Center for Education Statistics) is also included in trip attraction stage. They are geocoded into a point layer and then assigned to the TAZ layer by overlapping the layers.

Trip Balancing

Trips are balanced using the "holding production" method.

Trip Distribution

Gravity method is used in trip distribution. Free-flow travel time generated from the highway initialization stage is used to generate the impedance matrix, and later the friction factor matrix. Parameters in the NCHRP Report 716 are used. A feedback loop from the traffic assignment step with congested travel time in each time period can be a component considered to be added in a future update.

Output matrices from trip distributions segmented by trip purposes are then further segmented by four time periods in a day: AM Peak, Mid-day, PM Peak and Night. Person trips are converted to vehicle trips by vehicle occupancy without mode choice due to the absence of the transit component. P-A (Production-Attraction) matrices are transformed to O-D (Origin-Destination) matrices. The hourly lookup table is from the NCHRP Report 187. The vehicle occupancy factors are from the NCHRP Report 716.

External Trips and Truck Trips

External trip O-D matrices and truck O-D matrices are extracted from Streetlight Data, a big data provider. The matrices are slightly calibrated to match observed data near external stations. The external trip O-D matrices are then merged with internal trip O-D matrices for passenger cars. The truck O-D matrices are added to the all-in-one matrix file to represent the other two vehicle classes, segmented by medium-duty truck and heavy-duty truck.

Trip Assignment

The highway initialization step is performed prior to traffic assignment to calculate and generate necessary inputs for assignment. The calculation for free-flow travel time and link capacity follows the Highway Capacity Manual 2016 wherever it can be reasonably accommodated. One of the goals of this new model is to introduce intersection delay, where the Combined Link and Node Delay volume delay function is used in assignment. A simplified version of traffic signal information and stop sign information is coded to the node layer and then programmed to be transferred to

the link layer. Interrupted intersections with high priorities are programmed in the model (around 300 of them) and can be added to periodically. All these newly generated attributes are segmented into two directions and four time periods. A highway network is created based on these attributes.

When all input data is ready, the final traffic assignment step is performed in four time periods. The output volume is aggregated in different fashions to represent total volume by different segments (e.g. by direction, by time periods, by vehicle class). The aggregated output volume is written to the output highway database.

Future Year Scenarios

Other than the base year 2020, three future year scenarios are selected, in this case 2030, 2040 and 2050. Future year zone layers with forecasted socioeconomic data and line layers with planned roadway projects are required as inputs to future year scenarios.

For future year zone layers, a structure of "base year number + incremental number" is used. The base year socioeconomic data is from the 2020 Decennial Census and the LEHD product. The county-level socioeconomic forecast datasets are acquired from Woods & Poole Economics. During a multi-agency consultation process, these layers and datasets are given to local area plan commissions. They distribute the county-level incremental control totals for each category and each period to the zone-level model TAZs, based on their best knowledge on what is planned for the region. The received zone-level incremental numbers are then integrated with the base year TAZ layer into one single TAZ layer for all scenarios.

For future year line layers, a structure of "attributes by year" is used. Similarly, instead of having a different line layer for each scenario year, one single line layer is used to include all information for all scenario years. There are attributes to turn on and off for specific years. Certain rules are applied to other attributes to determine which ones override others based on the temporal sequence of the years. An "override" category is also added to be assigned with the highest priority. This approach significantly reduces the time involved in the regular maintenance of the line layer, thus increasing the sustainability of the model.

Validation Results

As mentioned earlier, INDOT's 2019 AADT roadway layer is used as observed traffic data. The travel demand model represents typical weekday traffic, and because AADT takes weekends into consideration, a weekday AADT adjustment factor is used to convert INDOT's AADT numbers to average weekday traffic. INDOT's adjustment factor for 2019 is 0.969. Throughout the region, 60 traffic count stations were selected to ensure the most accurate coverage. These stations were used in the validation stage as observed data. This eliminates the potential bias in this selection set for validation purposes. More stations can be added periodically in the future for comparison.

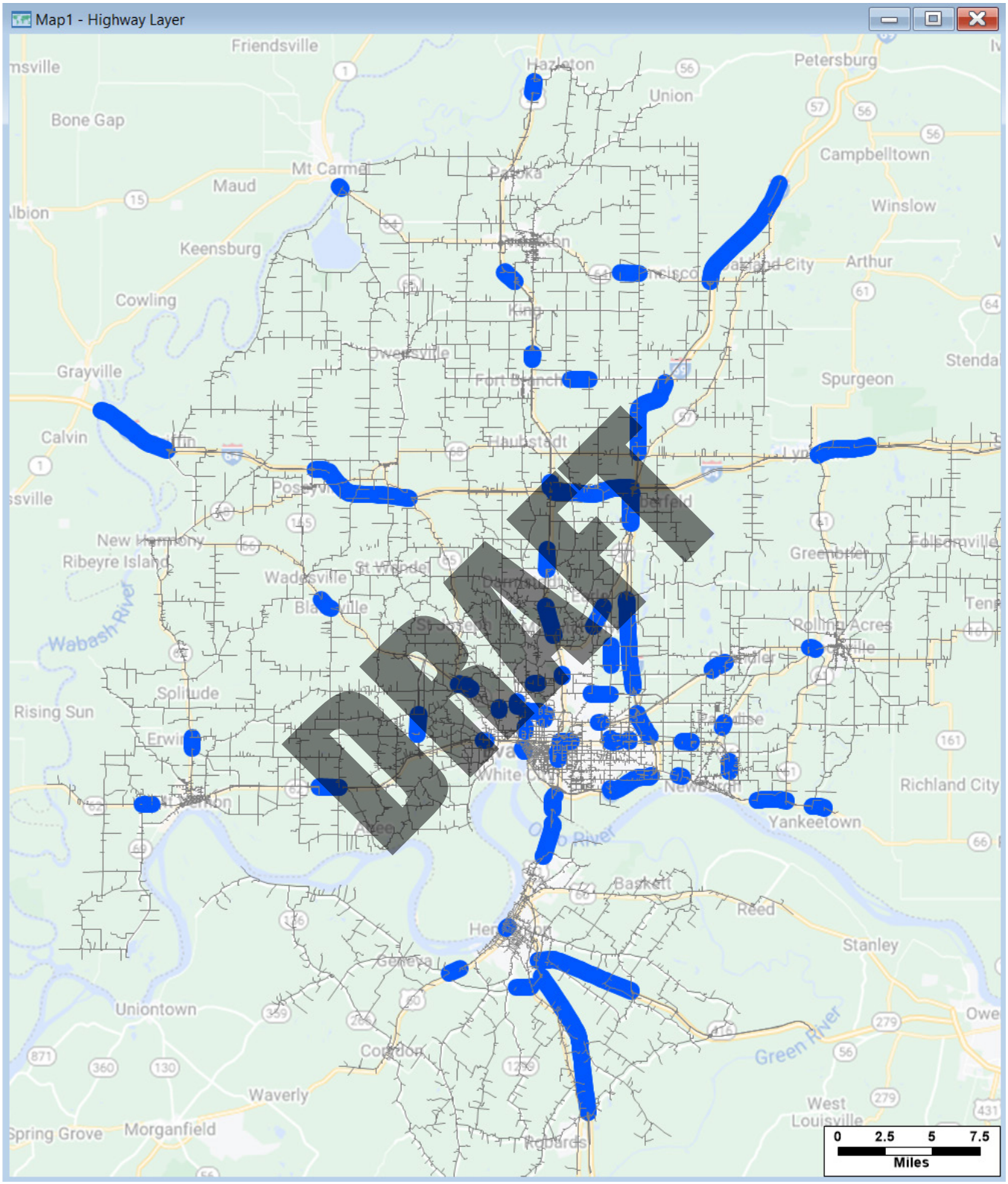
Figure H.1 shows the distribution of selected links with observed data. The links are evenly spread out over the modeling area with a focus on roads with higher AADT and higher functional class.

Table H.1 shows the comparison between the model output volume and the observed data. Because there are no unified official mandated values for the thresholds, the MPO used guidelines from Virginia DOT's Travel Demand Modeling Policies and Procedures in this comparison. As the table shows, values for percentage root-mean-square error (%RMSE) for all groups fall into the guideline's thresholds. As a result, the model is validated.

Table H.1: Comparison between Model Output and Observed Data

Weekday Daily Traffic	Number of Stations	RMSD	%RMSE	Virgina DOT %RMSE Guideline	Within guideline threshold?
>30,000	9	5543	12.65%	25%	✔
20,000-30,000	13	5346	20.31%	27%	✔
15,000-20,000	11	3773	21.67%	30%	✔
10,000-15,000	13	3319	25.42%	35%	✔
<10,000	13	2394	30.81%	45%	✔
Ohio River Crossing	1	936	0.24%	10%	✔

Table H.1: Selected Links with Observed Traffic Data



The Regional ITS Architecture Guidance published by the US Department of Transportation defines Intelligent Transportation Systems as: the application of advanced sensors, computers, electronics, and communications technologies and management strategies in an integrated manner to improve safety and efficiency of the surface transportation system.

ITS technologies are used to make the transportation network and transit system safer and more efficient for the movement of goods and people. ITS involves the integration of software, hardware and information flow between various agencies associated with the provision of transportation services. The roadway variable message boards that inform drivers of current weather, traffic, accident or construction ahead and available alternate routes are one visible example of ITS technologies.

I ITS ARCHITECTURE

ITS Architecture

An ITS Architecture is the framework within which a system of ITS projects can be built. It defines the components of the system and the interconnections and information flow between the components. The primary components of an ITS Architecture are Subsystems and Information Flows.

Subsystems

Subsystems are individual pieces of the overall ITS that perform particular functions such as managing traffic, providing traveler information, or responding to emergencies. Subsystems can be associated with particular organizations such as public safety agencies, transportation services, emergency management agencies, or transit providers. They are the sources and/or users of information provided by other subsystems within the boundary of an ITS architecture. Subsystems include center systems, roadside equipment, vehicle equipment and traveler devices that participate in ITS.

Information Flows

Information Flows define the information that is exchanged between subsystems such as traffic information, or surveillance and sensor control data. They depict ITS integration by illustrating the information links between subsystems. In ITS, this integration is not only technical but also institutional. The system interfaces that are defined require cooperation and shared responsibilities on the part of owners and operators of each participating system.

Evansville MPO Regional ITS Architecture

On January 8, 2001, the US Department of Transportation published the FHWA Final Rule and FTA Policy, which implemented Section 5206(e) of the Transportation Equity Act of 21st Century (TEA-21). The Final Rule/Policy, effective April 8, 2001, explains and defines how Section 5206(e) is to be implemented. TEA-21 required ITS projects funded through the highway trust fund to conform to the National ITS Architecture and applicable standards. The intention of the Rule/Policy is to foster the deployment of integrated regional ITS systems. The Rule/Policy also requires that the National Architecture be used to develop a local implementation plan or "Regional ITS Architecture" that would be tailored to address the local situation and ITS investment needs. The Infrastructure Investment and Jobs Act (IIJA) continues these requirements.

As the established regional transportation planning agency, the Evansville MPO has a developed "Evansville MPO Regional ITS Architecture". This ITS Architecture is a specific regional framework for ensuring institutional agreement and technical integration for the implementation of ITS projects in the Evansville MPO region.

Architecture Outline

The Evansville MPO ITS Architecture includes Vanderburgh County and Henderson County in the Evansville MPO planning area. The MPO has considered a 10-year planning horizon in developing the Architecture.

Stakeholders

All of the organizations related to the ITS elements of the transportation system have been identified as stakeholders and a brief description of each organization has been documented. The organizations identified as stakeholders are as follows:

- INDOT
- KYTC
- Department of Homeland Security
- LPAs
- Public Safety agencies
- Evansville Vanderburgh Traffic Signal Control
- Computer Services, City of Evansville
- Mass transit operators
- Commercial vehicle operators
- Railroad companies
- National Weather Service
- Evansville Fire Department

System Inventory

A list of ITS elements currently existing and planned has been documented along with a brief description of the system.

ITS Services

The regional transportation needs include: safe, secure and efficient transportation on freeways and arterials; commercial vehicle operations, public transit, emergency management and incident response. Various Market Packages that provide the

services to address the above-mentioned needs have been identified and listed.

Operational Concepts

The roles and responsibilities of all of the stakeholders associated with the Evansville MPO Regional ITS Architecture have been documented.

Functional Requirements

Activities are performed by each system included in the ITS Architecture are defined in detail and documented in the functional requirements.

ITS Standards

The standards address the flow of information between various systems included in the ITS Architecture.

ITS Projects

There were no new projects added since the last update in MTP 2045.

Agreements

Interagency coordination and cooperation are key issues related to the efficient implementation of ITS services in the area. This section documents known interagency agreements related to ITS. The development of additional agreements will be an item to address moving forward.

Future ITS Issues – Architecture Utilization, Implementation and Maintenance

The regional ITS architecture will guide future ITS efforts in the region and support the long-range planning process. The MPO will maintain the current architecture and develop future iterations of it in support of ITS projects as they emerge. It is anticipated that the framework established by this architecture will facilitate the efficient development of future projects by identifying key components required for their implementation and opportunities for institutional cooperation.

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METROPOLITAN TRANSPORTATION PLAN

2050

Evansville MPO

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