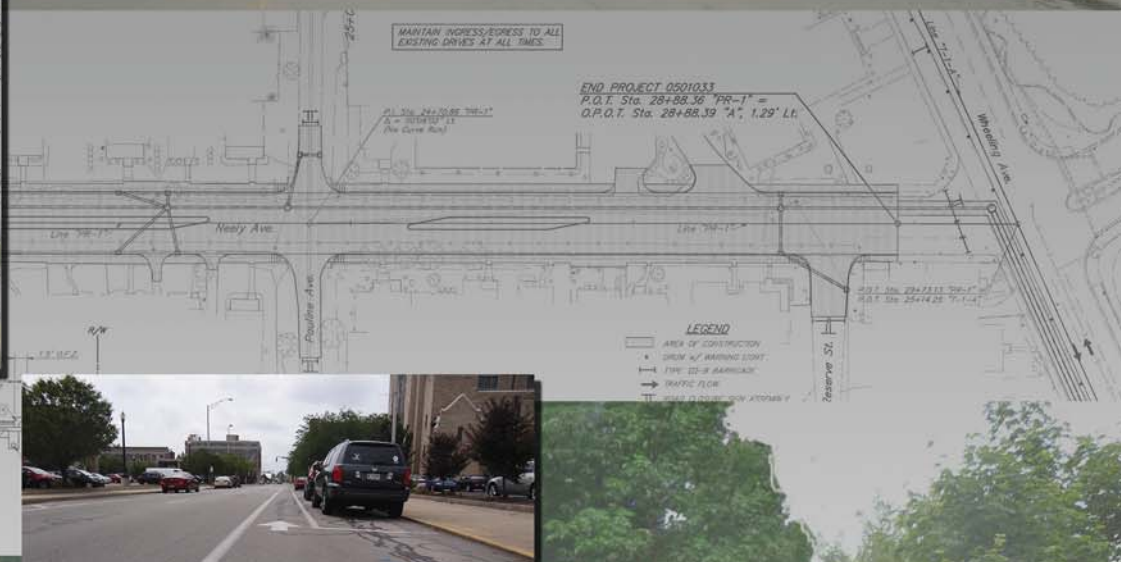
2018-2045 Delaware-Muncie Transportation Plan Update

A Multi-Modal Approach for a Healthy Community



DMMPC

Delaware-Muncie Metropolitan Plan Commission
2018

PUBLICATION NOTICE

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WORK PROGRAM FULFILLMENT

The 2018-2045 Transportation Plan fulfills in part Work Element Number 400 of the Delaware-Muncie Metropolitan Plan Commission's Fiscal Year 2019-2020 Unified Planning Work Program (UPWP). The purpose of Program Activity 400.02 hereby fulfilled is to produce a Long range Transportation Plan for Delaware County, Indiana.

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SECTION I

INTRODUCTION: MISSION AND GOALS

The *2018-2045 Delaware-Muncie Transportation Plan* updates and replaces the 2013-2040 transportation plan developed in 2013, though many of the previous sections remain intact with minor updates. The purpose of this plan is to provide long-range guidance toward developing and maintaining the transportation systems within Delaware County. The federal guidance toward this effort began with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), extended by the Transportation Equity Act for the 21st Century in 1998 (TEA-21), was enhanced in 2005 by the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), further enhanced by the Moving Ahead for Progress in the 21st Century Act in 2012, and continued/improved by the FAST Act. ISTEA expanded the role of Metropolitan Planning Agencies, set up the transportation plan process, and encouraged the inclusion of transportation enhancement projects in transportation improvement programs. Tea-21 carried those efforts further and added environmental justice. SAFETEA-LU expanded the safety and equity aspects of transportation improvements while maintaining and expanding the previous efforts. MAP-21 combined some federal funds, while emphasizing safety, accelerated project delivery and the use of performance measures as a tool to rate potential projects and analyze the effect of completed projects.

Delaware County was declared a Non-attainment Area for air quality on June 15, 2004; became a Maintenance Area in late 2005; and qualified as an Attainment Area in 2016. Because we returned to our original attainment status, it is a federal requirement that the Delaware Muncie Transportation Plan be updated every five years instead of four years. The TIP is a four-year program of federal aid projects and draws its projects from the Transportation Plan. A TIP is effective for four years or until the next TIP is approved, usually every one or two years. The projects listed in the last two years of a TIP can be moved up a year or two to replace projects delayed. Delays generally occur because of the effort to ensure that projects are designed and built to appropriate federal standards.

SAFETEA-LU set and MAP-21 and the FAST Act continued eight factors that must be considered in developing a transportation plan. The factors are: 1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency; 2) Increase the safety of the transportation system for motorized and non-motorized users; 3) Increase the security of the transportation system for motorized and non-motorized users; 4) Increase the accessibility and mobility of people and freight; 5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns; 6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight; 7) Promote efficient system management and operation; and 8) Emphasize the preservation of the existing transportation system. The 2018-2045 Transportation Plan was developed using those factors.

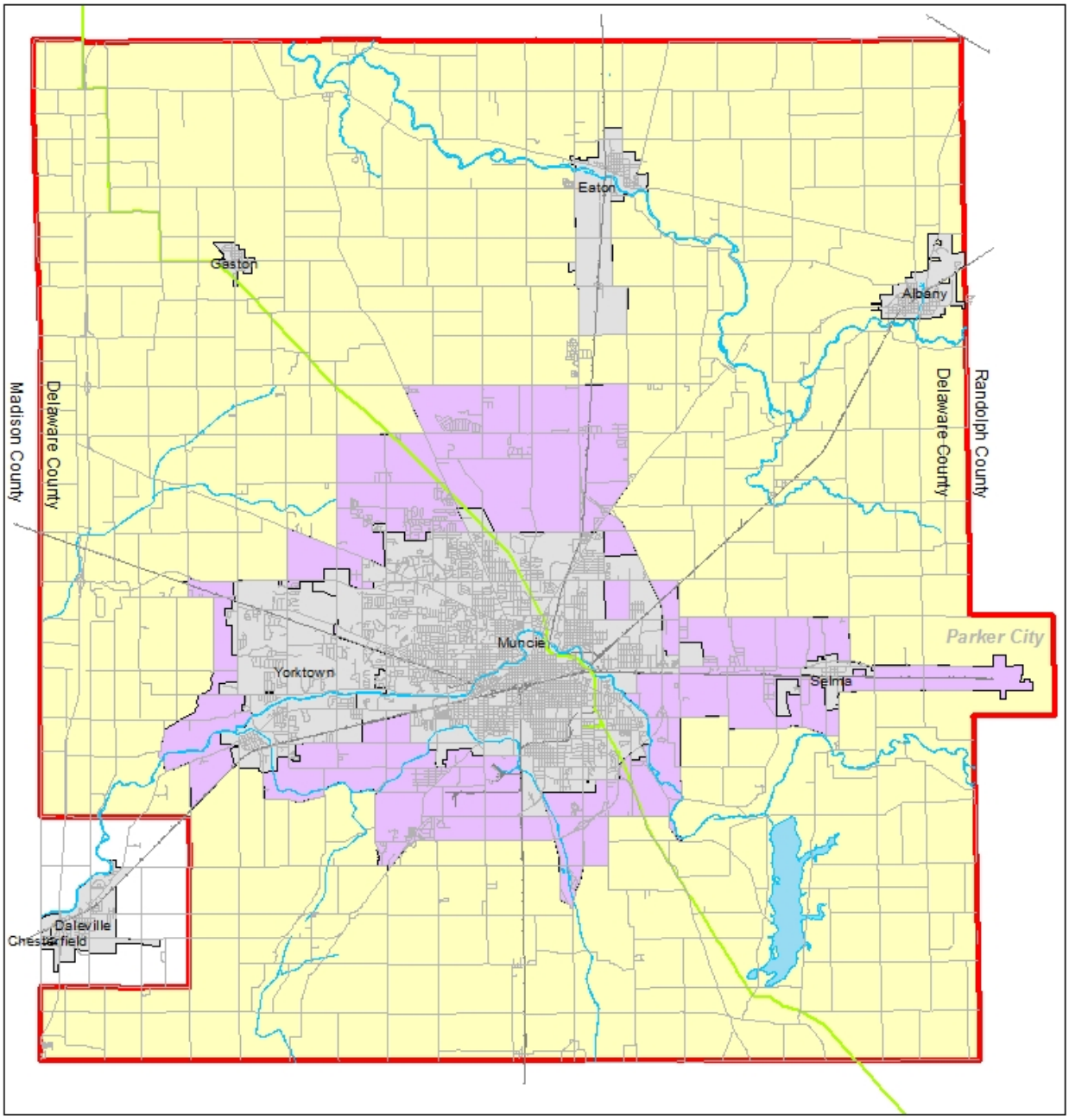


Figure 1
Muncie MPA

MISSION

The mission of the *2018-2045 Delaware-Muncie Transportation Plan* is to guide the continuous development of an integrated intermodal transportation system that facilitates the efficient, effective and environmentally sound movement of people and goods. This document covers all federal aid transportation projects in the metropolitan planning area (MPA) and all air quality significant transportation projects within Delaware County. The Muncie MPA is shown in Figure 1 and covers approximately 386.6 square miles of Delaware County, Indiana, and 4 square miles of Randolph County near Parker City, Indiana. The Anderson MPA has the remaining 10.5 square miles of Delaware County in the Daleville Area.

GOALS AND OBJECTIVES

The previously established goals and objectives were scrutinized through the local transportation planning process involving elected officials, technical advisors, public and private transportation providers, and private citizens. This review resulted in the following:

Goals:

Provide a safe, well-maintained, functional multimodal transportation system that is compatible with projected growth.

Develop cost-effective, environmentally sound plans, programs, standards and enforcement procedures for the maintenance and extension of public and private facilities that maximizes opportunities to create a healthy community environment for users of all abilities.

Promote the development of land, parking facilities and effective movement of people and goods within the Central Business District (also known as Downtown), while improving the aesthetic character and environmental quality of downtown Muncie.

Promote the community's ability to improve the surface transportation system by means of an improved economic base resulting from orderly economic development encompassing all industries - housing, retail, manufacturing and tourism.

Objectives:

Assure a cost-effective transportation system.

Use the existing transportation facilities to their maximum efficiency.

Decrease transportation related fatalities and accidents.

Reduce congestion and improve circulation, particularly for the City Center, University and major activity areas.

Provide satisfactory access/ connectivity from developed areas to the regional highway system.

Increase intermodalism to promote energy and environmental conservation.

Improve accommodation of non-motorized travel and the elimination of conflict between modes of travel.

Improve and increase the role of transit services to improve overall transportation system efficiency.

Improve and promote pedestrian and bicycle facilities and circulation to create a bicycle and pedestrian friendly community.

Ensure that transportation planning efforts consider citizen needs for all modes of transportation and concerns for impacts of the transportation system on other elements such as neighborhoods and business.

AIR QUALITY CONFORMITY

Beginning with the 2005-2030 Transportation Plan, the document planning area was expanded to include all of Delaware County, Indiana as a result of being declared non-attainment in terms of meeting the Eight-Hour National Ambient Air Quality Standards for Ozone. All of Delaware County is classified as one "airshed" which includes a part of the Anderson Metropolitan Planning Area surrounding Daleville, and the Muncie Metropolitan Planning Area, excluding Randolph County.

The Delaware-Muncie Metropolitan Plan Commission was charged with additional transportation conformity planning activities covering the entire airshed in order to show that the Transportation Plans with projects in Delaware County were in compliance with the National Ambient Air Quality Standards (NAAQS). The Transportation Conformity rule established by the Clean Air Act (§176(c)) can be found at 40 CFR parts 51.390 and 93. Conformity is intended to ensure that federal funding and approval are given to transportation activities that are consistent with air quality goals. The transportation conformity requirements address air pollution from on-road mobile sources – emissions created by cars, trucks, motorcycles and transit. Transportation Conformity applies to the long range Transportation Plan, the Transportation Improvement Program (TIP), all projects using federal transportation funds and regionally significant non-federal aid projects.

Delaware County was redesignated a Maintenance Area for air quality in late 2005 – indicating we attained the applicable air quality standards, however, Transportation Conformity continued to be a requirement in maintenance areas as well as non-attainment areas. A Mobile Source Emissions Budget was established for the Delaware County Air Quality Maintenance Area in 2007. That budget of 3.50 tons per day of volatile organic compounds (VOC) and 4.82 ton per day of nitrogen oxide (NOx) was a standard for Delaware County until 2013. Indiana, following an FHWA requirement to convert emissions analysis using the software MOVES, had each non-attainment and maintenance area update their budgets using MOVES. The new emissions budget of 2.53 tons per day of volatile organic compounds (VOC) and 7.02 tons per day of nitrogen oxide (NOx) became effective January 22, 2013.

The air quality standards were made stricter in 2016 and Delaware County became an Attainment Area by having been within the new standard when it was approved. A federal court case reversed that action and Delaware County is an Air Quality Maintenance Area as of 2/16/2019.

SECTION II

FAST ACT & PERFORMANCE MEASURES

The current transportation policy, Fixing America's Surface Transportation Act (FAST) Act, was signed into law on December 4, 2015. The FAST Act, along with its predecessor, Moving Ahead for Progress in the 21st Century Act (MAP-21), established new requirements for performance management to ensure the most efficient investment of Federal transportation funds. States will invest resources in projects to achieve individual targets that collectively will make progress toward the national goals.

National performance goals for Federal Highway programs:

Safety – to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

Infrastructure condition – To maintain the highway infrastructure asset system in a state of good repair.

Congestion reduction – To achieve a significant reduction in congestion on the National Highway System (NHS).

System reliability – To improve the efficiency of the surface transportation system.

Freight movement and economic vitality – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

Environmental sustainability – To enhance the performance of the transportation system while protecting and enhancing the natural environment.

Reduced project delivery delays – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

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

The Indiana Department of Transportation set 2019 Targets for the national performance measures and the Delaware Muncie Metropolitan Plan Commission (DMMPC), as the Muncie MPO, concurred with those targets and agreed to program projects that support the targets as follows:

Safety: Number of fatalities – 889.6
Rate of fatalities per 100 million miles traveled – 1.087
Number of serious injuries – 3,501.9
Rate of serious injuries per 100 million miles traveled – 4.234
Number of non-motorist fatalities and serious injuries – 393.6

Asset Management: 2019 Percent of Interstate pavements in Good condition – 84.24%
2019 Percent of Interstate pavements in Poor condition – 0.80%
2019 Percent of non-Interstate NHS pavements in Good condition – 78.71%
2019 Percent of non-Interstate NHS pavements in Poor condition – 3.10%
2021 Percent of Interstate pavements in Good condition – 84.24%
2021 Percent of Interstate pavements in Poor condition – 0.80%
2021 Percent of non-Interstate NHS pavements in Good condition – 78.71%
2021 Percent of non-Interstate NHS pavements in Poor condition – 3.10%

Bridge: 2019 Percent of NHS bridges by deck area classified in Good condition 48.32%
2019 Percent of NHS bridges by deck area classified in Poor condition – 2.63%
2021 Percent of NHS bridges by deck area classified in Good condition – 48.32%
2021 Percent of NHS bridges by deck area classified in Poor condition – 2.63%

Travel Time Reliability: 2019 Percent of person miles reliable on Interstate – 90.5%
2021 Percent of person miles reliable on Interstate – 92.8%
2021 Percent of person miles reliable on non-Interstate – 89.8%
2019 Percent of person miles reliable on Interstate – 90.5%
2021 Percent of person miles reliable on Interstate – 92.8%
2021 Percent of person miles reliable on non-Interstate – 89.8%
2019 Truck travel time reliability index – 1.27
2021 Truck travel time reliability index – 1.24

On-Road Mobile Emissions Reductions:
2019 Volatile organic compounds reduction of 1,600 kilograms per day
2019 Carbon Monoxide reduction of 200 kilograms per day
2019 Oxides of nitrogen reduction of 1,600 kilograms per day
2019 Particulate matter less than 10 microns reduction of 0.30 kilograms per day
2019 Particulate matter less than 2.5 microns reduction of 20 kilograms per day
2021 Volatile organic compounds reduction of 2,600 kilograms per day
2021 Carbon Monoxide reduction of 400 kilograms per day
2021 Oxides of nitrogen reduction of 2,200 kilograms per day
2021 Particulate matter less than 10 microns reduction of 0.50 kilograms per day
2021 Particulate matter less than 2.5 microns reduction of 30 kilograms per day

Supporting Projects:
Safety is a significant factor in the federal design standards for all road improvements. All of our road projects are expected to improve safety and support the Safety targets. The intersection improvement projects, including roundabouts, should help support Travel Time Reliability targets and Emissions Reduction targets. The project involving trails or sidewalks should help support Emissions Reduction targets

and the Non-Motorist Safety target. The County's bridge projects also include safety within their designs and should support the Safety targets.

Transit

FTA has performance measures for Transit Asset Management, and the final regulations are published and in effect.

The Muncie Indiana Transit System (MITS), the only urban transit operator in MPO's Planning Area, has established targets for various performance measures to track service conditions. The targets for required performance measures include:

5% of fixed route vehicles that have met or exceeded their useful life benchmark of 14 years,

5% of paratransit vehicles that have met or exceeded their useful life benefit of 8 years,

100% of rubber-tired vintage trolley buses that have met or exceeded their useful life benchmark of 14 years (these vehicles are used for promotional purposes & backup),

25% of non-revenue service vehicles that have met or exceeded their useful life benefit of 8 years,

3 or above rating for support facilities on the FTA Transit Economics Requirements Model (TERM). This currently includes the Operating & Maintenance Headquarters and the J.B. Black, Jr. Meeting & Training Facility.

3 or above rating for passenger facilities on the FTA TERM. This currently is composed of the T.J. Ault, III MITS Station.

Supporting Projects:

Muncie Indiana Transit System (MITS) Operating Assistance (federal/state) will help support the Emissions Reduction target by helping to reduce vehicle travel. MITS also uses soy-diesel and propane fuels, hybrid vehicles, and engine technologies to further reduce their vehicle emissions. The purchases of replacement buses and replacement paratransit vehicles will help support the Transit Vehicle Useful Life targets. The purchase of maintenance vehicles will help support Emissions Reduction targets by keeping the transit vehicles in better condition and reduce the potential for engine and particulate matter emissions. The replacement of other staff vehicles will help support Emissions Reduction targets by having newer engines and by helping with planning for operations that are more efficient. The roof replacement project will help support the Support Facilities Rating target. MITS continues to upgrade and maintain passenger facilities, whether or not that effort includes the use of federal funded projects.

SECTION III

DEMOGRAPHICS: SOCIOECONOMICS AND GROWTH TRENDS

As emphasized by the ISTEA, TEA-21, SAFETEA-LU, MAP-21, and FAST acts, there is an undeniable interrelationship among and between transportation, land use, demographics and socioeconomic factors. Policies, decisions and actions undertaken within one arena will affect the others. With a strong economy, existing businesses will expand and new business will locate in an area (after consideration of feasibility factors such as capacity of transportation facilities, utilities, labor force, etc.). This, in turn, provides new employment opportunities and these new employees will create a demand for housing and other urban amenities and services. Increased amenities (social, recreational, environmental) and services (roads, transit, utilities) increase the attractiveness of an area and its potential for obtaining more new business; and the cycle continues.

Indiana has grown from a population of 5,193,669 in 1970 to 6,666,818 in 2017 according to Bureau of the Census figures and estimates. That is a slow growth rate of about 0.5 percent per year over 47 years resulting in a 28 percent increase. East Central Indiana, Delaware County and the surrounding counties, reached their peak in 1970 when Delaware County had 129,219 residents. East Central Indiana's population has been shrinking gradually for 47 years and Delaware County's 2017 population was estimated at 115,184 by the Census Bureau. That translates into an 11 percent decline or a loss of 0.2 percent in population per year.

While Delaware County was dealing with Air Quality Conformity analyses, our population projections were for slow growth in a pattern mirroring Indiana's growth. Instead of growth, a long-term trend of slow decline has caused the Census Bureau and Stats Indiana to project a continued, but slower population decline for our long-term future. Past traffic projections were based on slow growth projected traffic growth that simply didn't happen. Traffic volumes have remained fairly static and unemployment has decreased without a significant increase in jobs, which is further evidence that Delaware County and the surrounding counties are shrinking in activity.

HISTORY

A very brief history of growth and development of the Delaware-Muncie area begins with the first permanent settlement in 1820 of a trading post amidst the Munsee Indian territory. Munseytown became the county seat in 1827 (over Granville and Smithfield, both on like waterways). Muncie was incorporated in 1854 and became a city in 1865. It became an Indiana second-class city in 1921.

Waterways and wagon paths were supplemented with railroads (8 lines laid between 1901 and 1948) and public roads. Enhanced connections between cities and towns were developed through a system of county roads, turnpikes and, eventually, a state highway system. The final connectors came with the completion of I-69 and the expansion of Johnson Field into the Delaware County airport, which ties the Delaware-Muncie area into a nationwide arena and a global economy.

Muncie was transformed from an agricultural trading center into an industrial community (glass, rubber, metals) with the discovery of natural gas in 1886. Depletion of the gas supply was followed by a growing automobile industry. The glass industry, via the Ball family, fostered a small community college, Normal City, which grew into Ball State Teachers College (with a 1944 enrollment of 1,346) and became Ball State University in 1965 with enrollment steadily increasing

until the mid 1990's to a range of some 19,000 students. That enrollment rose and fell near that level for about fifteen years, peaked at about 21,000 students, returned to the 19,000 level, and grew to the current peak of over 22,000 students.

Industry in the Muncie area declined into the 1980s, recovered some in the next few decades, but declined further and required fewer workers due to automation and less industry. The Health-Care and Service sectors provided increased jobs that helped offset the industry job losses. The result of this is that the local economy has become static and the local communities have needed to improve quality-of-life factors to help keep the current population and make the area attractive for when growth might spill over into our region.

TRAFFIC MODEL FORECASTS

The Delaware County traffic modeling forecasts were based on slow growth in the past. Because the Bureau of the Census and Stats Indiana have projected continued decline in Delaware County due to a long-range trend of declining factors, the future traffic models will reflect that slow shrinkage. The Forecast Control figures on below reflect that change.

Table 1: Summary of Forecast Control Totals

Years	2010[a]	2015	2020	2025	2030	2035	2040	2045
Labor Force	58,710	58,483	58,234	57,883	57,335	56,651	55,951	55,290
Total Population	117,671	117,220	116,719	116,018	114,951	113,633	112,287	111,011
Group Quarters	8,830	8,800	8,760	8,710	8,660	8,610	8,560	8,510
Household Population	108,841	108,420	107,959	107,308	106,291	105,023	103,727	102,501
Households (occupied units)	46,516	46,325	46,100	45,875	45,650	45,425	45,200	45,000
Household Size	2.34	2.34	2.34	2.34	2.33	2.31	2.29	2.28
Median Household Income (Yr 2010 dollars)	$38,066	$37,807	$37,550	$37,295	$37,042	$36,790	$36,541	$36,292
Total Vehicles	105,436	105,005	104,494	103,984	103,475	102,965	102,455	102,002
Personal (Household) Vehicles	87,286	86,928	86,505	86,083	85,661	85,239	84,817	84,441
Retail Employment	11,943	12,233	12,181	12,107	11,993	11,850	11,703	11,565
Non-retail Employment	41,789	42,802	42,620	42,363	41,962	41,461	40,949	40,465
Mining	34	34	34	34	33	33	33	32
Construction	2,375	2,433	2,423	2,408	2,385	2,357	2,328	2,300
Manufacturing	9,569	9,780	9,738	9,680	9,588	9,474	9,356	9,246
Transportation /Communications Public Utilities	3,279	3,359	3,345	3,325	3,293	3,254	3,214	3,176
Retail	11,943	12,233	12,181	12,107	11,993	11,850	11,703	11,565
Wholesale	1,507	1,543	1,536	1,527	1,513	1,495	1,476	1,459
Finance / Insurance /Real Estate	1,846	1,891	1,883	1,872	1,854	1,832	1,809	1,788
Services	15,073	15,439	15,373	15,280	15,136	14,954	15,770	14,596
Government	8,126	8,323	8,288	8,237	8,160	8,062	7,963	7,868
Total Employment	53,732	55,035	54,801	54,470	53,955	53,311	52,652	52,030

Sources: (a) Indiana Department of Workforce Development for labor force and "wage and salary" employment; U.S. Bureau of the Census for 2010 population and housing; and Indiana Business Research Center for median household income and motor vehicle registration with the State of Indiana Bureau of Motor Vehicles.

SECTION IV

BASE TRANSPORTATION SYSTEM

Existing Major Roadway Facilities:[1]

The major roadway facilities that serve Delaware County include an interstate, a national highway and various state highways. Interstate 69, located in the far western portion of the county, is the most significant roadway serving the area. US 35 provides an eastern bypass around the city of Muncie. The bypass continues around the south side of Muncie as SR 67.

The interstate, national and state highways are part of the National Truck Network which are highways built to accommodate large truck travel. Some of the highways in Delaware County are also part of the National Highway System, which is a system of 160,000 miles of roadway important to the nation's economy, defense and mobility. Functional classifications are given to roadways throughout the nation to evaluate statewide significance relative to levels of passenger or freight operations (see Figure 3 for Delaware County functional classifications). Indiana has developed a simplified corridor classification scheme for statewide planning purposes. This hierarchy has three levels: Statewide Mobility Corridors, Regional Corridors and Local Access Corridors (see Figure 4 for Indiana corridor hierarchy). I-69 and SR 67 from I-69 to SR 3 are considered Statewide Mobility Corridors. US 35, SR 3, SR 28, SR 32, and SR 67 are considered Regional Corridors. All other roadways are considered Local Access Corridors.

Interstate 69. Interstate 69 runs south-north from the Madison County Line to the Grant County Line. It is classified as a Rural Interstate, excluding a segment between the SR 67 and SR 32 interchanges in Daleville, where it is classified as an Urban Interstate. I-69 connects Delaware County to other metropolitan areas in Indiana and the national market and is part of the National Highway System.

United States Highway 35. US 35 begins at the Henry County Line in southeastern Delaware County and travels north to 29th Street in Muncie, where it connects to SR 67/SR 3 and becomes the Muncie Bypass. US 35 travels around the east side of Muncie and north along SR 3 to SR 28. It then runs along the alignment of SR 28 west to I-69. US 35 lacks directional continuity through the county. US 35 is classified as a Rural Minor Arterial from the Henry County Line to Fuson Road, an Urban Principal Arterial south and north of the Bypass to SR 28, an Urban Freeway/Expressway on the Bypass, and a Rural Principal Arterial as it runs concurrently with SR 28.

State Road 32. SR 32 runs west-east from the Madison County Line to the Randolph County Line. It begins at the Madison County Line east of Daleville and travels through Daleville northeast to Yorktown. From Yorktown, it travels east through central Muncie and Selma. SR 32 exits the county east of Selma at the Randolph County Line. From the Madison County Line to Tillotson Ave, SR 32 is classified as an Urban Principal Arterial; however, it is classified as a Rural Minor Arterial for a two-mile segment between Daleville and Yorktown. It is classified as an Urban Minor Arterial from Tillotson Avenue to US 35 through Muncie. From County Road 700 East to the Randolph County Line, SR 32 is classified as a Urban Principal Arterial. SR 32 provides continuous access throughout the county.

State Road 332. SR 332 runs west-east from Interstate 69 to Tillotson Avenue where the state route terminates. It continues eastward as McGalliard Road to the Muncie Bypass. It is classified as a Rural Major Collector from I-69 to County Road 700 West, a Rural Minor Arterial from there to

[1] This section is taken from the Western Growth & Arterial Analysis Study, BLA with CBA, 2004 and remains current.

County Road 500W and as an Urban Principal Arterial from County Road 500 West to Tillotson Avenue.

SR 3, SR 28, SR 67, SR 167. These highways serve Delaware County, connecting rural areas to the Muncie Urbanized Area. SR 3, SR 28 and SR 67 are classified as Rural Principal and Minor Arterials. SR 3 is also classified as an Urban Freeway/Expressway at the Muncie Bypass and is part of the National Highway System from the Henry County Line to its intersection with SR 67. SR 28 is also classified as a Rural Major Collector through Albany. SR 67 is classified as an Urban Principal Arterial around Daleville and as an Urban Freeway/Expressway when it ties into the Muncie Bypass. SR 67 is also on the National Highway System from I-69 to its intersection with SR 3. SR 167 is classified as a Rural Major Collector northward from Albany.

The Base Roadway Network:

The road network in the Delaware-Muncie area provides, for the most part, efficient and convenient traffic movement. The state highway system provides the major routes crossing Delaware County. The Muncie Bypass allows traffic on the state highways to avoid the delays from city traffic and yet provide easy access to the major streets serving Muncie. The Muncie street system is on a grid crossed by diagonal minor arterials that provide quick access toward the downtown or across town. The major rural roads efficiently connect various small communities with each other, the state highway system and Muncie.

The Muncie street network is organized in a grid system of four major arterials with 4-5 lanes each connected to quarter-mile collector streets by minor arterials that rotate outward on straight and diagonal directions, creating a wagon wheel effect. The major arterials providing easy access to each side of the city are: McGalliard Road (north), Memorial Drive (south), Madison/Broadway Avenue (east), and Tillotson Avenue (west). The minor arterials branching off in various directions are: Walnut, Jackson, Elm/Granville, Burlington, Hoyt, Kilgore, and Bethel. Other minor arterials such as Riggin, Centennial, Willard, Eighteenth, Batavia/Nichols, Cowan and Morrison help complete a normal grid pattern.

Muncie's downtown network was set up in a system of one-way streets to better handle the high volume of traffic projected in the past for growing activity downtown. State Road 32 separates onto Main and Jackson Streets through the downtown, carrying major east-west traffic movements on a pair of two-lane one-way streets. Washington, Adams, and Charles are local one-way streets designed to provide east-west capacity to supplement State Road 32. Walnut Street separates into a one-way 3-lane loop through the Central Business District (CBD) using High, Gilbert, Mulberry, and Seymour Streets. The local one-way streets supplementing the downtown loop's north-south capacity are: Franklin, Jefferson and Elm Streets.

The Indiana Department of Transportation (INDOT) maintains annual estimates of daily vehicle miles traveled (VMT) by motorized vehicles on public roads by county. The Historic VMT summary prepared by INDOT indicates that VMT within Delaware County and the surrounding counties have not grown during the past decade. The estimated daily VMT for Delaware County was 4,472,000 miles in 2006; 3,657,000 miles in 2010; and 3,562,000 miles in 2016. The INDOT VMT estimates vary up and down each year, but show a slight decline for Delaware County in a long-term pattern. The same pattern has been true for Henry, Madison, Grant, Blackford and Randolph Counties.

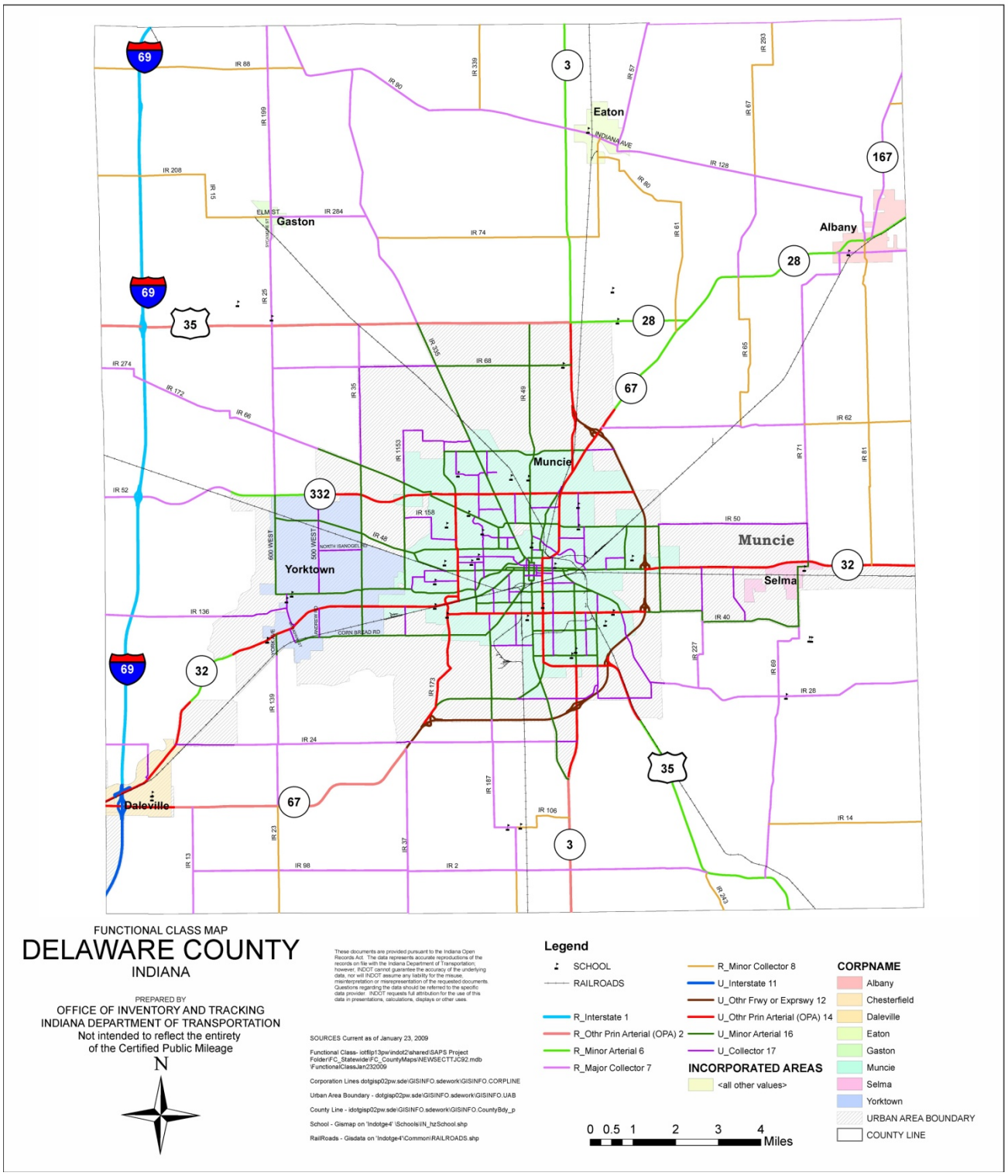


Figure 2: Functional Class System

The lack of north-south arterial streets in northwestern Muncie is a problem for handling future traffic due to growth there. Tillotson Avenue has approached capacity as the main north-south traffic route and there have been no parallel streets where overflow traffic would be acceptable. Some collector streets may need to be upgraded and connections made to create acceptable minor arterial routes to supplement the capacity of Tillotson Avenue. Added to the problem is the fact that McKinley Avenue, as a street through Ball State University, is not on an appropriate path for an arterial handling through traffic. Most urban Indiana street networks accessing universities are designed to carry traffic along the edge of the university to limit car/pedestrian conflicts. Reconstruction, signal modifications and improvements to the street network at the perimeter of the University are expected to provide alternative solutions. The slight decline from 2000 to 2010 has given us time to construct a roundabout at the Morrison/Jackson intersection and upgrade Morrison Road to enhance the area's traffic flow and safety. Similar upgrades were planned for Nebo Road and a roundabout was constructed for Nebo at Jackson.

The major one-way streets for State Road 32 and the downtown loop have performed well in carrying a majority of the north-south and east-west traffic through the downtown. However, the extra capacity from other one-way streets supplementing the major downtown traffic movements was not needed and the street characteristics tend to interfere with the neighborhoods' sense of community. The one-way streets acted as short-cut routes where pedestrians were at risk from fast traffic and night-time noise was a problem.

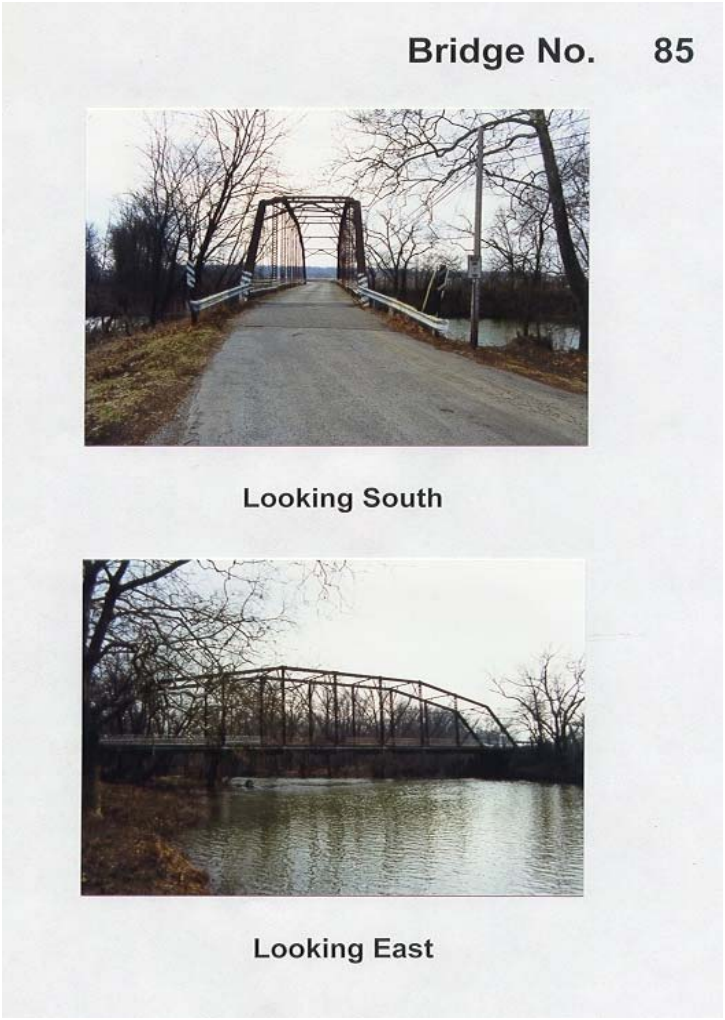
Committee discussions on downtown revitalization indicated a desire to return the supplemental one-way streets to two-way traffic with on-street parking. This street configuration creates a higher normal level of traffic conflict and causes the drivers to be more cautious. When the drivers slow for traffic conflicts they have time to notice pedestrian movements. The idea was to make a street safer by increasing the level of risks that a driver perceives. This concept is an accepted traffic calming method and succeeds due to the oddities of human nature. Various local streets that were one-way have been converted to two-way traffic. An added benefit to two-way traffic has been the ease in accessing a location directly by motorized vehicle instead of maneuvering on a circuitous one-way path.

The downtown loop was considered potentially dangerous due to some drivers speeding with a three-lane configuration. That configuration was converted from three to two lanes and enhanced with on-street parking and a bike lane to help calm traffic and provide better mobility for bicycle traffic. Bike lanes were also added to Walnut Street in the Downtown.

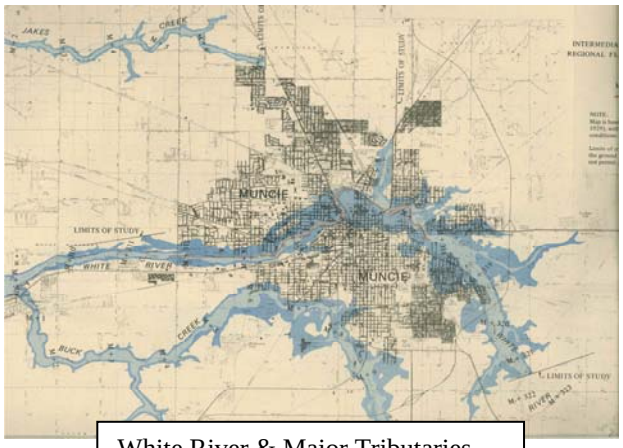
Walnut Plaza was rebuilt as a city street with an attractive sidewalk and landscaping in 1999-2000 and a rotary at the southern end of the downtown loop in 2007. Walnut Street in the Plaza Area was reconstructed in recent years, made more ADA accessible, and converted to two-way traffic, while keeping on-street parking. The on-street parking and available public parking appear to have helped restaurants and night-spots starting business in Walnut Plaza. In conjunction with transportation improvements, the success that has been achieved in revitalizing downtown Muncie has been done through a comprehensive approach facilitated by the Downtown Development Partnership – a not-for-profit public/private partnership – that has included factors such as façade renovations, event planning, business retention and expansion, and aesthetics. The addition of Canan Commons, a public park at the south end of the plaza, has helped bring the public downtown.

Bridges*:*

The local roadway system has 190 waterway bridges and one railroad overpass structure. The provision of these bridge structures are required due to the White River, the Mississinewa River, and their tributaries as well as the rail lines previously described. The waterways create topographic features which greatly influence the surface transportation system and traffic flow. The White River, Buck Creek and Kilbuck Creek require the provision and maintenance of sixty bridge structures in the urbanized area. There are about 130 more bridges in the rural areas of Delaware County.



The Delaware County Bridge Inspection Report, compiled biennially, provides comprehensive information on the various characteristics, function and condition of the bridges in the local jurisdiction. The report also suggests maintenance, repair and replacement improvements suggested for the bridges within five years. Future bridge inspection reports will give consideration to the upgrading of some bridges to allow more rural roads to handle heavy vehicles carrying grain to market.



White River & Major Tributaries

It should be noted that Delaware County has 8 historic metal bridges remaining on its roadway network – a ninth bridge #131 was by-passed and left in place during a federally funded bridge reconstruction project. This by-passing greatly increased project costs on this low volume roadway. Most of these structures were manufactured by the Muncie-Delaware County based Indiana Bridge Company, which moved here in 1886 and became nationally prominent under the engineering guidance of John R. Marsh and the management of Charles M. Kimbrough. With this unique history, retention of the structures is seen as important, however, in balancing that desire with the Comprehensive Plan's emphasis on economic development and preservation of the farming industry, relocation of some may be the most desirable end result. Such relocations will be a continuing consideration as the county-wide bicycle and pedestrian improvements are constructed – with many of our trails and paths following waterways, there will be a need for bridge crossings to create connections.

Historic Bridge #85 has been relocated from south of Albany to the White River north of State Road 32 near Bunch Boulevard as part of the Kitselman Project connecting the Cardinal Greenway and White River Greenway bicycle/pedestrian trails using new trail paths and a trailhead with a park area. The project also involves revitalizing a brownfield ex-factory area and relocating Bunch Boulevard to intersect with State Road 32 further east where sight-distance will be better.

It should also be noted that Delaware County maintains numerous culverts that allow surface drainage through the local road system. The difference between a bridge and a culvert is that a bridge is at least twenty feet in length.

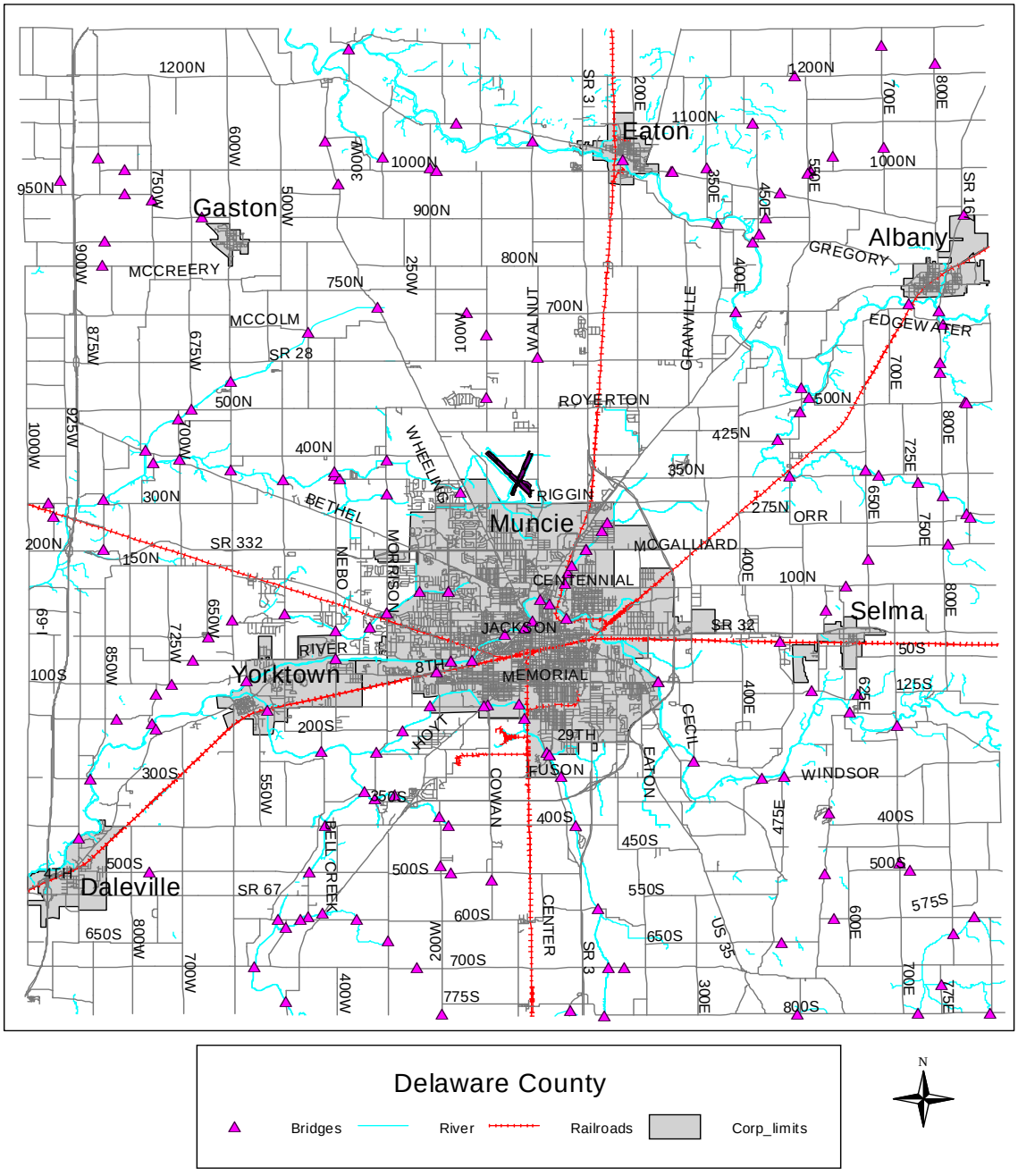


Figure 3: Delaware County Bridges

Railroads:

Railroads are a vital part of the American transportation system as the primary long-distance freight transportation mode. In 1991, railroads carried 37 percent of intercity freight. The railroad share of long-haul transportation is even higher: railroads accounted for 46 percent of traffic over 500 miles in 1990. Railroads carry a wide range of key commodities and manufactured goods. One important role is as a carrier of bulk commodities. Railroads carry 60 percent of U.S. coal shipment, 68 percent of pulp and paper, 53 percent of lumber and 45 percent of food products. Railroads also play a major role as transporters of manufactured goods. More than 67 percent of new cars and 55 percent of household appliances are moved by rail. And increasingly, those goods are being moved intermodally.

U.S. freight railroads used approximately 3 billion gallons of diesel fuel in 1993, accounting for 2 percent of total U.S. petroleum fuels consumed for transportation. Passenger trains accounted for less than 0.1 percent. Railroads can move a typical ton of freight more than 279 miles on just one gallon of diesel fuel. Transportation by rail benefits air quality through low emissions and reduction of highway congestion. Vehicles stalled in traffic emit up to 250 percent more pollutants than free-flowing traffic. One doublestack intermodal freight train carries the equivalent of 280 truck loads. Since 1908, railroads have increased their fuel efficiency by 52 percent and further improvements will occur in the coming years. Additionally, the improved efficiency of new generation locomotives allows three locomotives to do a job that 10 years ago required four.The average highway is three times as wide as a railroad right-of-way, but carries much less traffic. In carrying capacity, two railroad tracks are equivalent to 16 lanes of highway. Railroads are the safe way to move freight. Railroads have cut derailments and train accidents by more than 50 percent since 1981, and almost 30 percent in the last 10 years. Additionally, the rail record in moving hazardous materials is especially impressive. Railroads carry more than 1 million carloads of hazardous materials annually and 99.99 percent reach their destinations safely without an unintended release of the product as a result of an accident.

The rail network, comprised of four major routes intersecting in Muncie, provides the area with the means of heavy freight movement on a national network. The CSX Railroad has an east-west route that follows State Road 32. The Norfolk Southern Railway has a local east-west multi-county route through Muncie, and two major north-south routes through Indiana that merge in Muncie and connect southeast with Cincinnati, Ohio.

Two national rail systems maintain routes through Delaware County which intersect in Muncie, Indiana. The CSX Railroad had the heaviest rail traffic on its east-west route it obtained when the Conrail Transportation Company was split up in 1988. The number of trains decreased 30 percent in the past five years, but the trains have become longer. This route carries seventeen (17) trains per day and more than twenty million gross tons of freight per mile. The Norfolk Southern Railway carries the remaining rail traffic. Its northern route through Royerton carries twenty-seven (27) trains per day and the southern route carries twenty-nine (29) trains per day. The Norfolk Southern Railway western route through Cammack carries six (6) trains per day, including trains from a north-south route through Alexandria and Central Indiana. An eastern Norfolk Southern rail route through Albany, Indiana averages only one (1) train per day according to the Federal Railroad Administration (FRA).

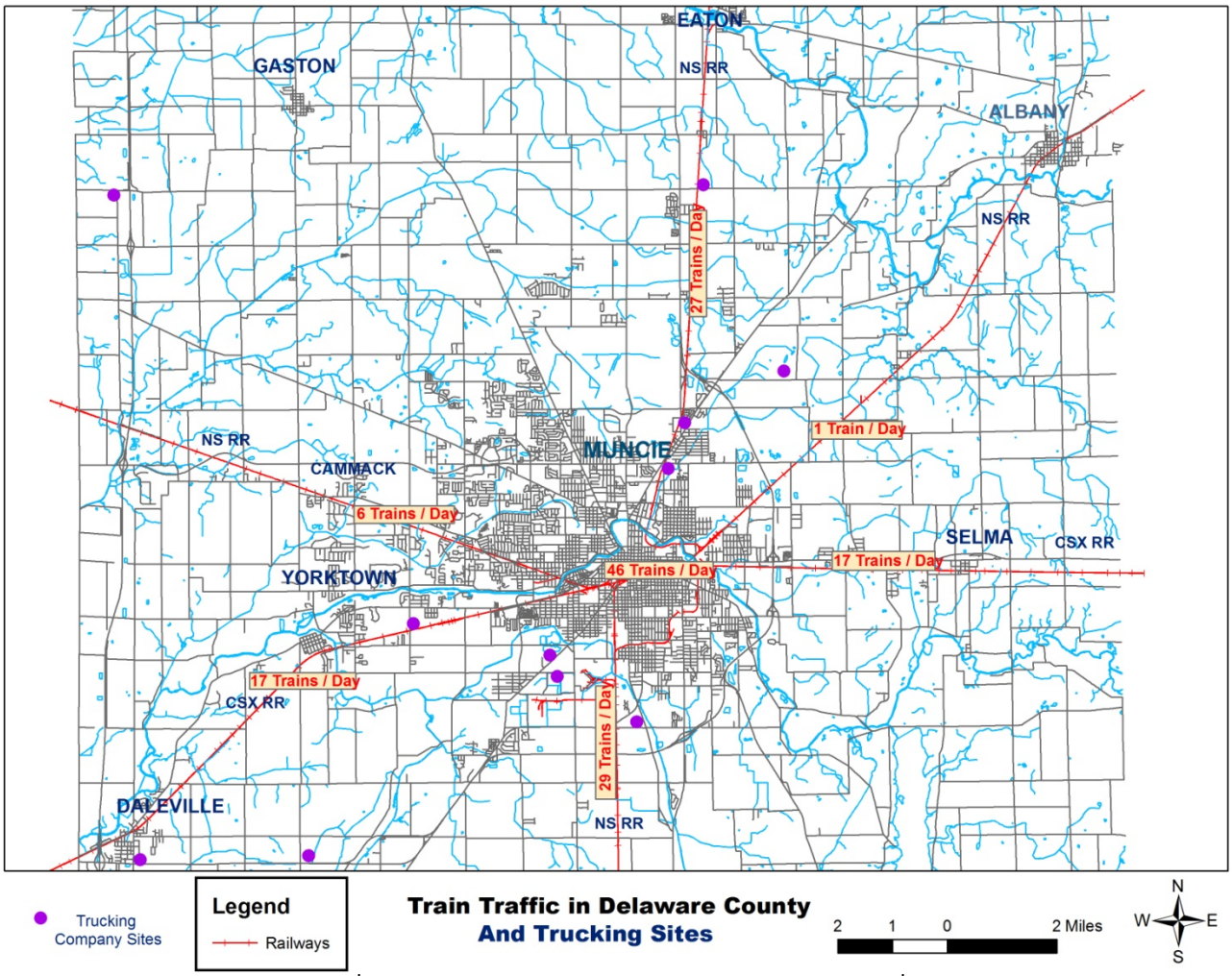


Figure 4: Railways & Trucking Sites

Muncie & Western, a local railroad with a small amount of side tracks near Memorial Drive and Macedonia Avenue was dissolved and abandoned around 1995. The Norfolk Southern Railway has side tracks reaching into industrial areas south of 18th Street in Muncie and in the Industrial Centre south of Muncie. The CSX Railroad has a side track that heads south from the downtown parallel to the Cardinal Greenway Trail. This side track exists, but does not appear ready for rail traffic.

One rail overpass and five rail underpasses in Muncie and three overpasses on Muncie Bypass help to reduce rail/street traffic conflicts and improve traffic movement. The Dr. Martin Luther King Boulevard overpass (Tillotson Extension) allows traffic to avoid the CSX Railroad in western Muncie. The Downtown has two underpasses that bypass both major railroads using Jackson Street to the east and Madison Street to the south. Three railroad underpasses along the north side of the White River allow traffic on McCulloch Boulevard and Bunch Boulevard to avoid the Norfolk Southern Railway just north of the downtown. Muncie Bypass has overpasses over the CSX Railroad and over the Norfolk Southern Railway's northern and eastern routes, but has a rail crossing with its busy southern rail route. That rail crossing 0.75 miles east of Cowan Road needs to be replaced with an overpass when it can fit in the INSTIP. State Road 332 has an overpass over the Norfolk Southern Railway's western route and Interstate 69 has overpasses over both major railroads in western Delaware County.

A study was completed for a possible relocation of the northern Norfolk Southern Railway route to follow the Bypass and come in from the east with its route from Albany. Federal discretionary funds were spent this study. The northern rail route was used to access an industrial area in northeast Muncie a few decades ago. The industrial uses that needed rail access have gone and there is a strong conflict between traffic near Muncie Mall and the rail traffic on the northern route. A project for the rail route relocation would require significant federal funds and enough benefit to the Norfolk Southern Railway for the company to pursue it.

Muncie used federal discretionary funds toward a study of rail crossings in the downtown. The old Roberts Hotel and the Horizon Convention Center had cited instances in which they lost business due to noise from train whistles in the downtown. The rail crossing study inventoried the existing crossing protection devices and considered possible safety upgrades that would allow Muncie to pursue a Train Horn Quiet Zone through the downtown area. The timing of improvements needed for a special downtown hotel and hospitality training facility resulted in a public-private partnership that funded rail crossing improvements that allowed Muncie to pursue a Train Whistle Quiet Zone. No federal funds were used toward the construction because of the time required for the oversight process involved with such funds. The City of Muncie enacted legislation to create the quiet zone after the FRA accepted that the proper safety analysis and safety improvements had been completed.

There are freight stations and switching operations for the two major rail systems within Muncie. The CSX Railroad has a combined freight station/switching operation on High Street south of the Central Business District (CBD). The Norfolk Southern Railway's principal terminal is southwest of the CBD with additional freight and warehouse facilities between the CBD and Kilgore Avenue. A switching terminal on Gavin Street in northeastern Muncie connects the northern rail route with the rest of the Norfolk Southern rail network. This terminal would be relocated near Muncie Bypass if the northern rail route were relocated to connect there.

Freight Intermodal is the movement of highway trailers and containers by rail and at least one other mode such as truck or steamship. Intermodal service has inherent advantages: it combines the door-to-door convenience of trucks with the high volume, long-haul economies of railroads. Railroads first reported intermodal loadings as a separate category of traffic in 1955. In that year, intermodal, then known as "piggyback", accounted for less than one-half of one percent of all rail carloadings. Today, intermodal is the fastest-growing segment of the rail industry, and is second only to coal as a source of business. In 1993, railroads moved more than 7 million trailers and trailers.

One important issue for the rail industry is the status of "intermodal connectors". Intermodal connectors are the roads in general. The Norfolk Southern Railway runs intermodal traffic through Ft Wayne and Munc, streets, and highways that connect rail terminals to the main highway system. Without investment in high-quality intermodal connectors, intermodal service will be unable to fulfill its potential for shifting from highways to railroads. Improvement in such roads and/or locating intermodal facilities near major highways would benefit railroads, the trucking industry, and the public ie, so relocating the switching terminal from Gavin Street to near Muncie Bypass and adding truck freight facilities would allow for intermodal service there. This possibility is tied to future plans to relocate the northern Norfolk Southern Railway route to follow the Muncie Bypass and could be a benefit of that effort.

Trucking*:*

Twenty-one companies that truck freight or materials have facilities in Delaware County. Five companies are major freight trucking firms and a majority of the rest are local trucking concerns. Materials hauled other than common goods include petroleum products; sand, gravel and concrete; grain; etc. The Industrial Centre, south of Muncie, has two freight trucking companies and two mail transport facilities. Daleville has two freight trucking companies on State Road 67 near Interstate 69. One freight trucking company is located on State Road 28 near Interstate 69. Six local trucking concerns are located in Muncie and the rest of the trucking businesses are located near the state highway system throughout the county (see Figure IV-1).

Elements of the Trucking Industry

Freight planning starts with the development of a good economic profile of the industries in the region; an understanding of which industries generate freight; and a sense of how those industries and the economic structure of a region are likely to change over time. Detailed long-range economic forecasts are not necessary for most state and metropolitan freight projects, but a basic understanding of the economy and current trends is mandatory.

Economic Structure - The economic structure of a state or metropolitan area - that is the types of business and industry in an area and the number and type of jobs and households they support - is the key determinant of the type and volume of freight and goods that will move through a region.

Industry Logistics Patterns - The logistics strategies of business and industry - very generally, the decisions about where to buy goods and where to sell them determine freight flows.

Infrastructure - The freight system infrastructure includes highways, rail lines, freight terminals, warehouses, and airports - the physical facilities over which goods and commodities flow.

Traffic Flows - The economic structure of a region, the logistics strategies of its industries, and the available infrastructure determine the flow of trucks, rail cars, and planes.

Institutional Arrangements - The final element of the freight transportation system is its institutional structure - the pattern of ownership, regulation, and pricing that shapes logistics strategies, determines who uses freight transportation facilities, and controls the flow of vehicles.

At this time, most state DOT's and MPO's lack sufficient truck trip data to model the comparative costs of different truck freight networks and investment levels. A quick assessment can be made by evaluating a sample of truck trips against alternative networks and performance standards: Do the networks provide comparable coverage of major businesses and industries? Are there significant differences in access, circuitry, reliability, cost, and safety.

Some local industries may have logistics models that will analyze shipping costs and indicate potential benefits. The state DOT's and MPO's can arrange to review network plans with motor carrier and economic advisory councils, industry associations, and local development groups.

Currently there are only a few trucking firms available locally for each type of commodity transported. The variety of trucking based out of Delaware County reflects a variety of commodity types and transport needs. The transportation options are limited for an efficient cost-effective movement of goods. The options for the goods mobility can be enhanced through intermodal connectivity. Delaware County has lost a few long-haul trucking firms that restructured and centralized operations with terminals closer to Indianapolis.

As mentioned, exact figures on the amount of trucks included in average daily traffic (ADT) counts are not readily available. Most of the local data on truck volumes come from turning movement counts, but a more comprehensive set of data will be available after the Plan Commission Office updates its traffic count equipment to counters that will collect that data with better ease and accuracy. Current count data indicates that trucks make up about 2% of the ADT, but some highway facilities carry a higher portion of trucks due to travel patterns and road designs that better accommodate heavy trucks. Special attention is needed so that the arterial streets selected for truck routes are maintained with the proper channelization, ingress/egress accesses and pavement strength to accommodate heavy trucks.

Airport*:*

The Delaware County Airport, also known as Johnson Field, is located in Hamilton Township, 3+ miles north of the center of the City of Muncie, just outside the city limits at the northwest corner of Walnut Street and Riggin Road.

Construction for the airport began in March, 1932, and was completed six months later on September 11, 1932. The airport facility has grown over the years with the last significant improvements occurring in the 1980's through funding grants from the Federal Aviation Administration (FAA) and the Aeronautics Commission of Indiana.

The airport has an "X" shaped runway configuration. The runways have an asphalt surface with dimensions of 6500 by 150 feet for runway 14/32 and 5000 by 100 feet for runway 2/20. There are various repair, service, storage and support airport facilities plus a restaurant on-site.

The airport facilities include a Federal Aviation Administration control tower under part-time operation (as opposed to 24-hour). The elevation is 937 feet above sea level and the longest runway is usable for its full length of 6500 feet. The airport location identifier is "MIE". The airport is an FSS (Flight Service Station) facility up to a certain frequency where the controlling FSS, Terre Haute, would provide service. There is lighting for the airport from sunset to sunrise.

Public Transit:

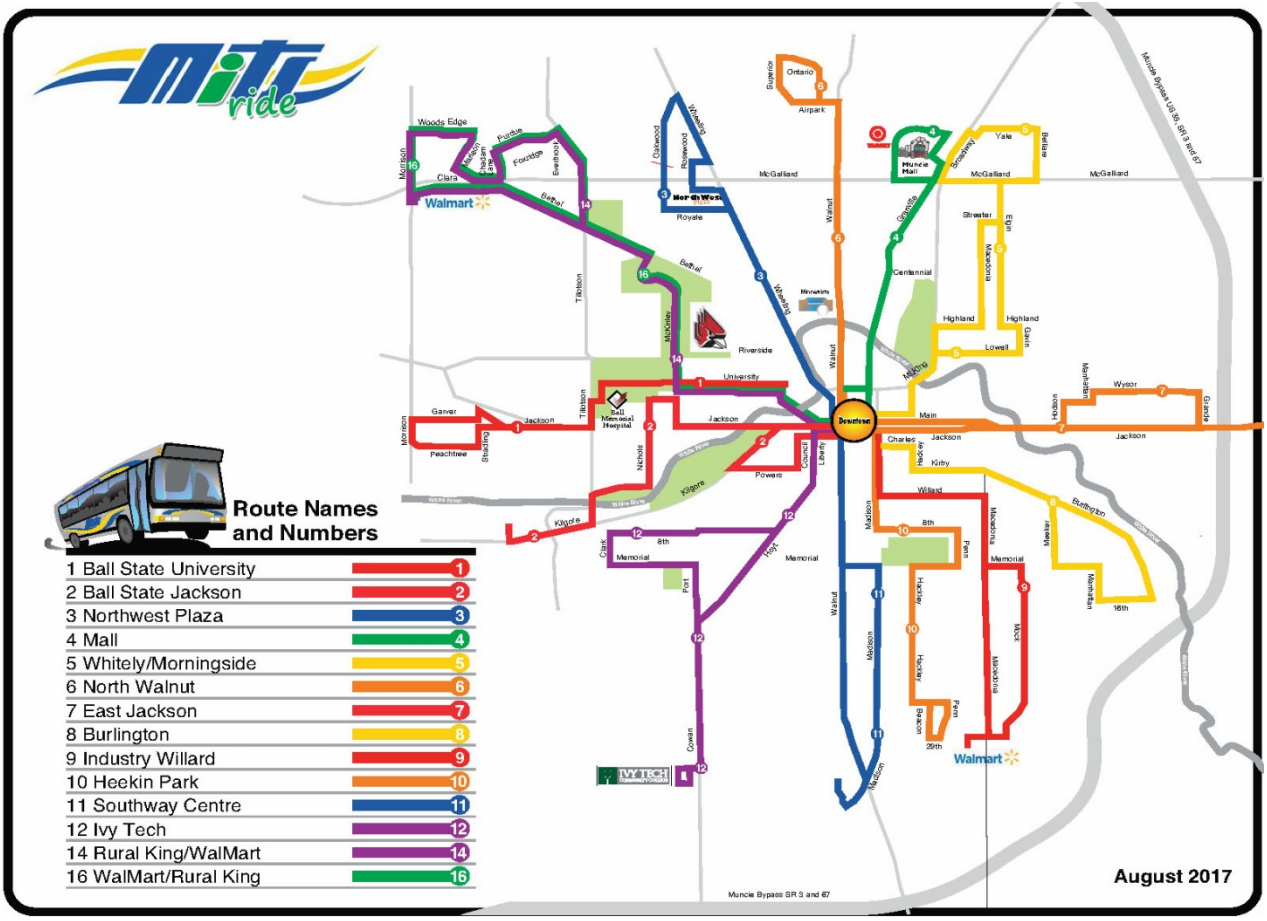
Muncie Public Transit System (MITS)

The Muncie Public Transportation Corporation (MPTC), created in 1981, is the governing board for the Muncie Indiana Transit System (MITS), which has provided Muncie with public transit services since 1981. Muncie City Lines, a private company, provided the transit service for over 40 years prior to 1981 using subsidies from the City of Muncie to keep the operation financially solvent. MITS is a non-profit public entity that has a local city tax draw

and receives state and federal funds to subsidize its operating costs. The MPTC owns 30 heavy-duty buses for 14 fixed routes and owns 15 transit vans for the MITS Plus demand responsive service and 3 trolley buses for transit purposes in Muncie, Indiana.

The MPTC contracts with First Transit, Inc. of Cincinnati to provide the management for MITS. First Transit was ATE in 1981 when the MPTC first contracted with them for management services. The current personnel under contract with First Transit to manage MITS are often from the local area, but First Transit sometimes brings in people with the necessary level of expertise from other transit systems.

Muncie, Indiana is a second-class city with a population of 70,085 people according to the 2010 Census. The MITS fixed route system provides service that accesses most of Muncie. The fourteen MITS fixed routes operate Monday through Friday (roughly 6 am to 6 pm) and Saturday (roughly 8 am to 6 pm) with weekday evening service to about 9 pm for five of the routes (#4, 5, 9, 11 and 16).



The transit service hours for MITS, including MITS Plus, are 6:00 am to 9:00 pm Monday through Friday and 8:00 am to 6:00 pm on Saturday. The number of MITS Plus vans in use at different hours of the day vary by the number of trip requests, but trips are available at any time within the service hours previously listed. Trip requests by ADA-certified riders of MITS Plus may be made up to 14 days prior to the trip and next day trip requests are accepted. Same day trips (at a $2 fare) may be requested Monday through Saturday, depending on the availability of empty service slots. MITS Plus service complies with ADA in allowing trips for a companion/personal care attendant and for ADA-certified riders from other transit systems.

Fare Structure. The MITS base fares are 50-cents for a fixed route (bus) trip and one dollar for a demand responsive trip (MITS Plus). MITS requires all MITS Plus riders to be ADA certified. The fixed route (bus) fare for elderly and disabled riders is 25 cents. A transfer to a second bus to complete a trip is free. Children under age 5 ride free with a paying adult and students ride free. A one-day fixed route (bus) pass is $1.00 (50 cents for elderly and disabled riders). MITS offers a 30-day bus pass. The transit vehicles are equipped with fareboxes that process passes and sell single fares and one-day passes.

Physical Facilities. MITS has an excellent administrative and maintenance facility that was constructed in 1986. The T. J. Ault Transfer Station, completed in 1987, is an excellent facility with amenities for both passengers and drivers. MITS expanded its Garage/Administration facility by building an annex on the other side of Blaine Street and placing its training room, meeting room, and van storage area there in 2004. An exercise room was added in 2005 to act as a fitness center for MITS employees.

Marketing Policies. The public transit marketing program was almost non-existent prior to 1981, but it has gradually developed into a dynamic program that represents MITS well. The marketing program has brought new ridership to the fixed route service in recent years, tapping the Ball State University (BSU) student trip needs and Muncie shopping trip needs as sources for service expansion. MITS has worked with the local school systems, the public library, BSU, local government, and various public groups in promoting the use of public transit in Muncie.

MITS maintains a website to keep the public current on transit services offered, special events supported by transit service, and transit detours resulting from local street projects. Trip planning software is available on the MITS website to give potential passengers specific directions on how to access and use MITS bus routes for a specific trip. The trip planner allows someone unfamiliar with MITS to make a transit trip, including transfers, in the shortest time possible to arrive at a specific destination by a desired time. This new electronic service gives potential riders the confidence that they can easily use transit to meet their travel needs within a reasonable travel time.

Financial Condition. MITS is in excellent financial condition due to sound fiscal management, an excellent maintenance program, good personnel policies, a good local tax base, and state and federal operating subsidies. The passenger fares for MITS are among the lowest in the nation. The fares were raised in 1993 to maintain significant fare revenue while keeping fares affordable. The fare structure was adjusted in 1999 to simplify it for electronic fare-boxes that can issue one-day pass tickets as well as process fares. The annual increase in the local tax rate for MITS has been kept low.

MITS has an FY 2017-2021 Transit Asset Management Plan that we incorporate in its entirety as part of the Transportation. The Transit Asset Management Plan outlines the transit projects planned for FY 2017 through 2021 and specifies the Transit Performance targets.

New InterUrban Public Transit Service

LifeStream Services (previously known as Area 6 Council on Aging) maintained a demand responsive service for the elderly and disabled in Delaware County outside of Muncie since 1994. MITS provided the rural service from 1981 until 1991, when federal regulations forced them to give it up to the private sector. From 1991 into 1994 Family Services of Jay County provided the service naming it "Golden Age" and operating in a multi-county area. LifeStream Services operated rural transit service in various counties, but with separate efforts in each county. Lifestream Services, using input from the public and service agencies, developed plans in 2001 for a multi-county rural transit service. The "New Interurban" started fixed route service in addition to existing demand responsive service in Jay and Randolph Counties in 2002. It expanded into Delaware County in 2004 and Blackford County in 2005. The New InterUrban dropped its service to Delaware County residents on July 1, 2013 due to a lack of local government financial support toward it. LifeStream Services still provides transit trips for seniors in Delaware County. New Interurban has been well planned and locally supported by local government in Jay, Blackford, and Randolph counties and is a good example for how rural transit can thrive in Indiana. It is possible that rural transit will be provided to the general rural population in Delaware County in the future when the economy improves and priorities change.

FTA funds are available under FTA Section 5310 for capital purchases toward the provision of public transit service to the elderly and persons with disabilities, who otherwise would be without such services. The non-profit agencies that have applied for FTA Section 5310 (previously 16B2) funds within the past decade are: LifeStream Services, Hillcroft Services, and Comprehensive Mental Health Services (CMHS).

Public Transit Coordination

LifeStream Services hosts a Transit Transportation Advisory Committee meeting quarterly (since March, 1994) to discuss public transit and service coordination issues involving non-profit agencies in a multi-county area (Blackford, Jay, Randolph, Delaware, Henry, and Madison Counties). Some rural transit trips have a trip end in Delaware County. The meeting topics have included: ridership needs for cross county trips, driver training, availability of phone/radio communications on vehicles, and current rules for Medicaid eligible costs.

MITS handles the demand responsive public transit service for persons with disabilities (ADA) within Muncie, while Eaton EMT handles after-service-hours trips in Muncie and similar trips in rural Delaware County for ADA clients. The New InterUrban, rural public transit operated by LifeStream Services, stopped serving Delaware County residents in July 2013. The demand responsive service provided by MITS in Muncie started with 4 vans in 1981 and ridership demand required MITS to expand to 15 vans in 2000. MITS has been able to maintain the current service with 14 vans.

The New InterUrban had growing ridership in its established service and expanded into the adjacent counties. This rural transit service uses vans from various service agencies and will continue to need replacement transit vehicles to maintain this service. LifeStream Services uses FTA Section 5311 funds to supplement the rural transit operating costs, but as with all public funding sources, available transit funding (local, state, federal) has declined some.

A new service began in 2009 through a cooperative effort between MITS, the MPO, and Eaton EMT that provides 24/7 demand responsive public transportation for persons with disabilities. MITS provides administrative support and Eaton EMT is the service provider for service that supplements, but doesn't duplicate, existing public transit service. The handicap accessible vans providing the service were purchased with New Freedom funds and private donations from the United Way, the City of Muncie and the Delaware County Commissioners. This new service stemmed from a recommendation in the Muncie-Delaware County Public Transit - Human Services Coordination Plan completed by the DMMPC/Muncie MPO in 2007. That Plan is hereby incorporated by reference as a part of the 2018-2045 Transportation Plan. Future public transit projects will be guided by the recommendations, goals and objectives laid out in this document.

Role of Public Transportation

MITS provided 1,433,005 transit trips in 2017, an all-time low for the transit service. This is roughly 1.0 percent of the person trips made by an estimated 70,000 people in Muncie, Indiana. One or two percent may seem low, but that equates to at least a million vehicle trips removed from the traffic flow each year. At least a million fewer vehicle trips in 2017 contributed to congestion in Muncie, Indiana, than would have without transit. MITS transit trips reached a high of 2,029,481 in 2008, fluctuated to 1,922,062 trips in 2014, and steadily dropped to the 2017 level. Gas prices have been reduced or level during that decline in transit trips. There are signs that gas prices may increase to previous levels, which would bolster the demand for transit trips.

Transit allows a portion of the population to choose not to drive and provides greater mobility to the elderly, persons with disabilities, and those who cannot afford a car. Public transit is a vital service for healthy urban and rural environments in that it helps to reduce traffic congestion, reduce energy consumption, reduce air pollution and provide travel options for those who can't or shouldn't drive. It is a service that can be maintained in skeleton form, as it is now, and expanded in the future when energy sources may be limited. Public transit services are gaining in importance as our country struggles to find ways to maintain a good quality of life without sacrificing mobility.

Transit also provides opportunities for connection to the bicycle and pedestrian system as it develops. As will be seen in the Bicycle and Pedestrian Plan section, one of the data layers taken into consideration when developing the bike-ped network was the MITS routes and shelter locations. Bike racks on buses are available and emphasis will be given to sidewalk facilities leading to shelters.

SECTION V

TRAVEL CHARACTERISTICS

TRANSPORTATION, DEMAND AND CONGESTION

Congestion occurs when the traffic on a street segment nears or exceeds its practical capacity. The capacity of a street segment depends on a variety of factors: numbers of lanes, lane width, acceptable gap between vehicles, percent turning movements, percent truck/bus traffic, curb cuts per mile, green time for lanes at intersection, type of area served by road, etc.

A simplified set of capacity figures were determined using a formula (page 11-11 of Special Report 209 of the Highway Capacity Manual) that uses number of lanes and green time per signal cycle: Capacity = 1600 vehicles per hour (vph) * # of Lanes * percent green time / multi-lane factor. The base traffic flow of 1600 vehicles per lane assumes an acceptable gap of 2.25 seconds between vehicles. A simple signal with two equal phases will have 45 percent green time and 5 percent lost time (amber & all red) for each direction. A default value of 0.45 was used for green time per cycle. The multi-lane factor is 1.05 for streets with two lanes per travel direction and 1.00 where only one lane per direction exists (page 11-11 of Special Report 209).

Capacity is generally calculated for the worst hour and daily capacity is an estimated value derived from that. If a road segment had a capacity of 1,000 vehicles per hour, then it could handle 24,000 vehicles per day if it had 24 peak travel hours. However, peak travel generally occurs within 6-10 hours daily with 9-11 percent of the travel during the peak hour. The peak travel drops toward 8 percent per hour as a road approaches capacity during the peak travel hours. The table below lists default capacity values calculated for street segment base capacities with an adjustment (0.966) for the conversion from average weekday traffic (when congestion is likely) to average annual daily traffic. The daily capacity was calculated with peak hour traffic at 8 percent of the daily traffic and with a 55/45 percent traffic directional split during the peak hour.

BASE CAPACITIES FOR STREET SEGMENTS

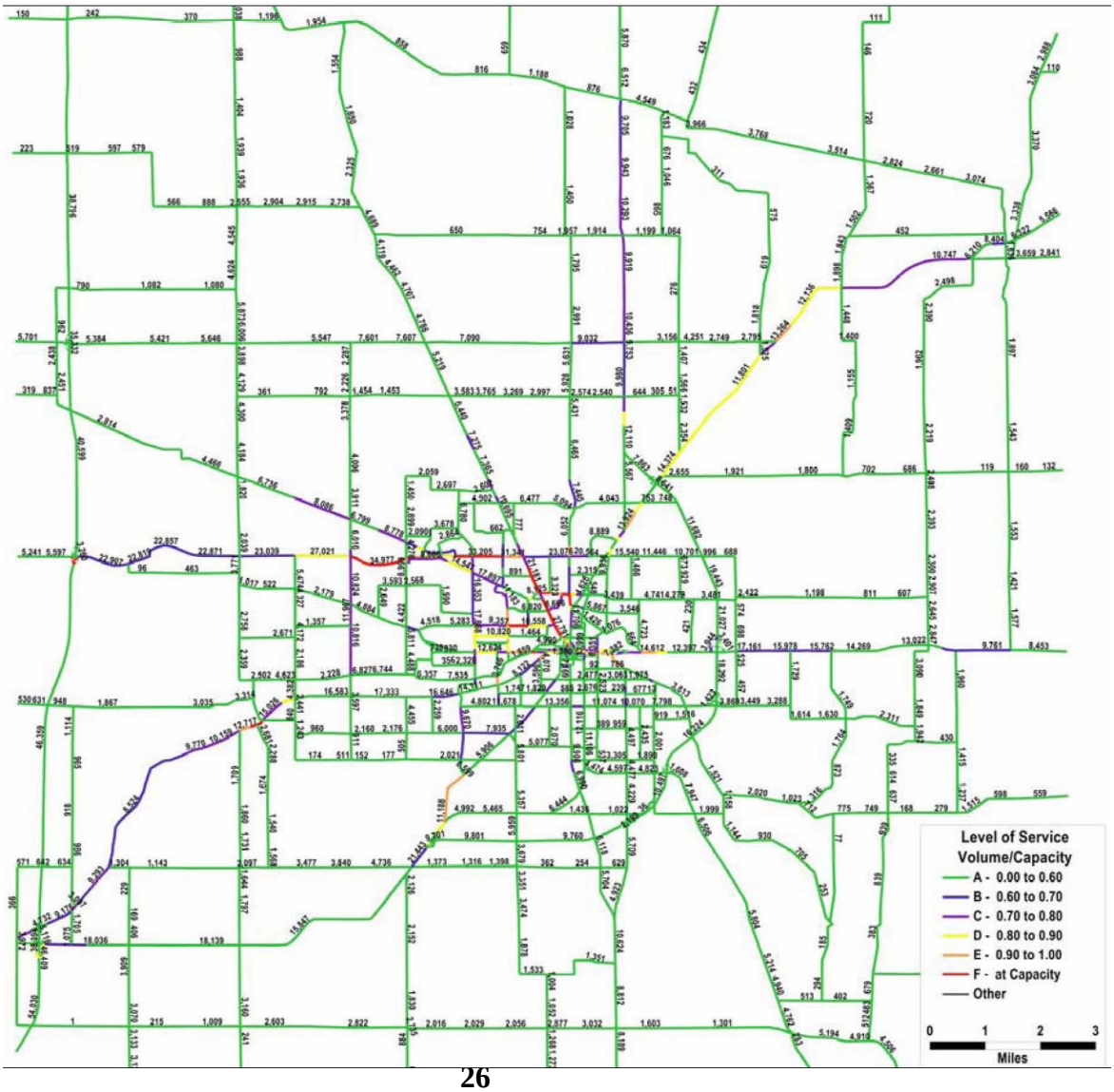
# of Lanes	1 DIRECTION		2 DIRECTIONS		With Central
Per Direction	Hourly Cap.	Daily Capacity	Hourly Cap.	Daily Capacity	Turn Lane
1	720	8,700	1,310	15,800	21,600
2	1,370	16,540	2,490	30,070	35,870
3	2,020	24,380	3,670	44,340	

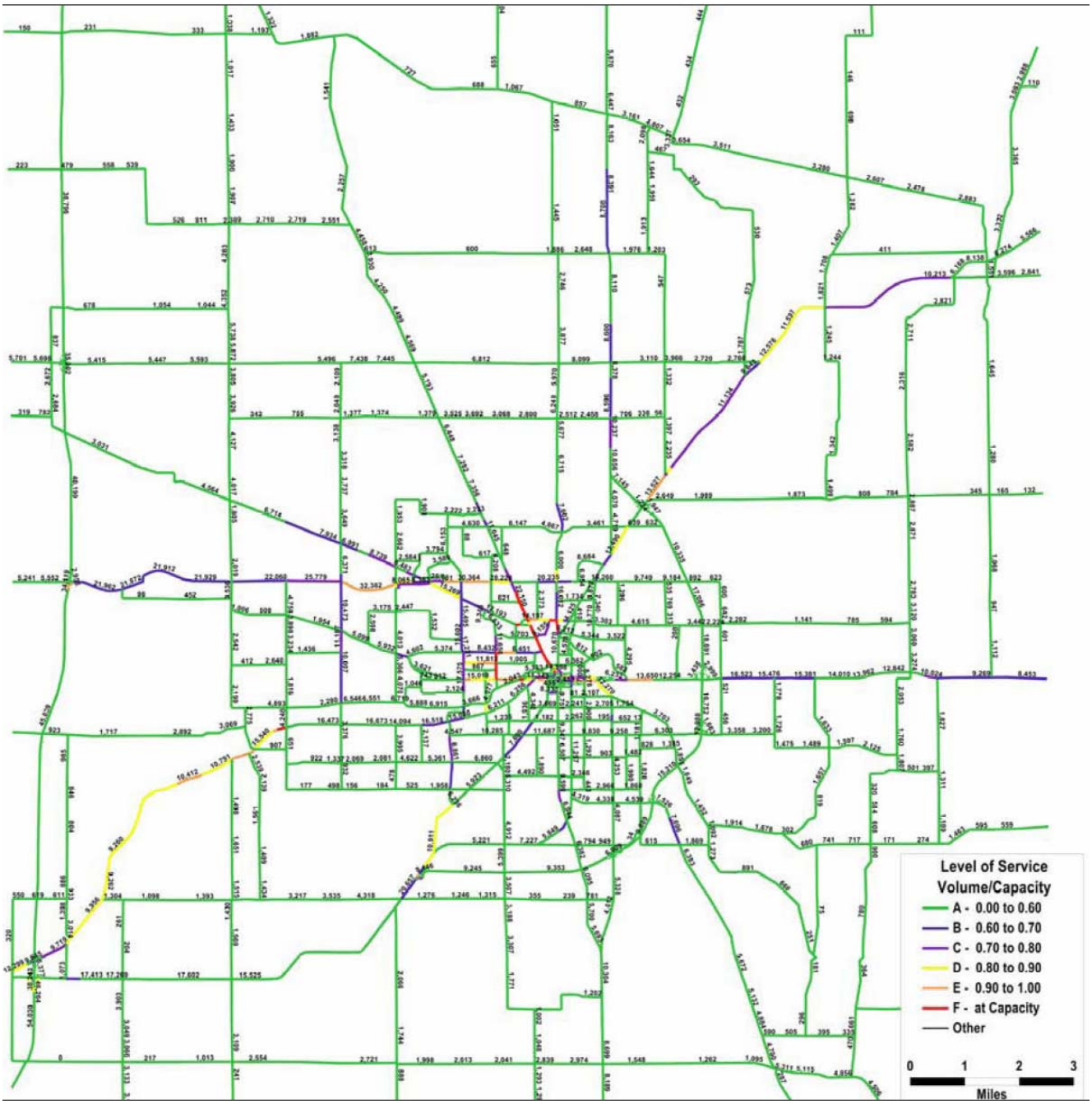
NOTE: Cap. = capacity

To analyze traffic flow conditions, level-of-service is used similar to a school grading system from A to F where F constitutes a failure in traffic flow due to exceeding capacity. Level-of-Service (LOS) is an evaluation of traffic flow conditions based on the volume-to-capacity ratio for roadway segments and the delay experienced by drivers at intersections. It is generally accepted that a LOS of C is desirable and a LOS of D is marginally accepted. On a national basis, LOS C is usually established as the minimum standard for the horizon year in rural areas, and LOS D is established as the minimum standard for the horizon year in urban areas. The Indiana Department of Transportation (INDOT) Roadway Design Manual uses such standards. LOS E is considered undesirable, and LOS F is clearly unacceptable.

Current projections indicate a slowly decreasing population and traffic. The Level-of-Service (LOS) should improve or remain static with a slow decrease in future traffic. Shown below on the following pages are maps of LOS in Delaware County as generated by the traffic models for various years. The red road segments indicate where the model projected traffic exceeding capacity. The traffic counts taken where red appears on the model are actually a bit lower than the road capacity, but were projected too high by the model. However, many of the road segments that are red, orange, or yellow show where traffic congestion is likely to occur.

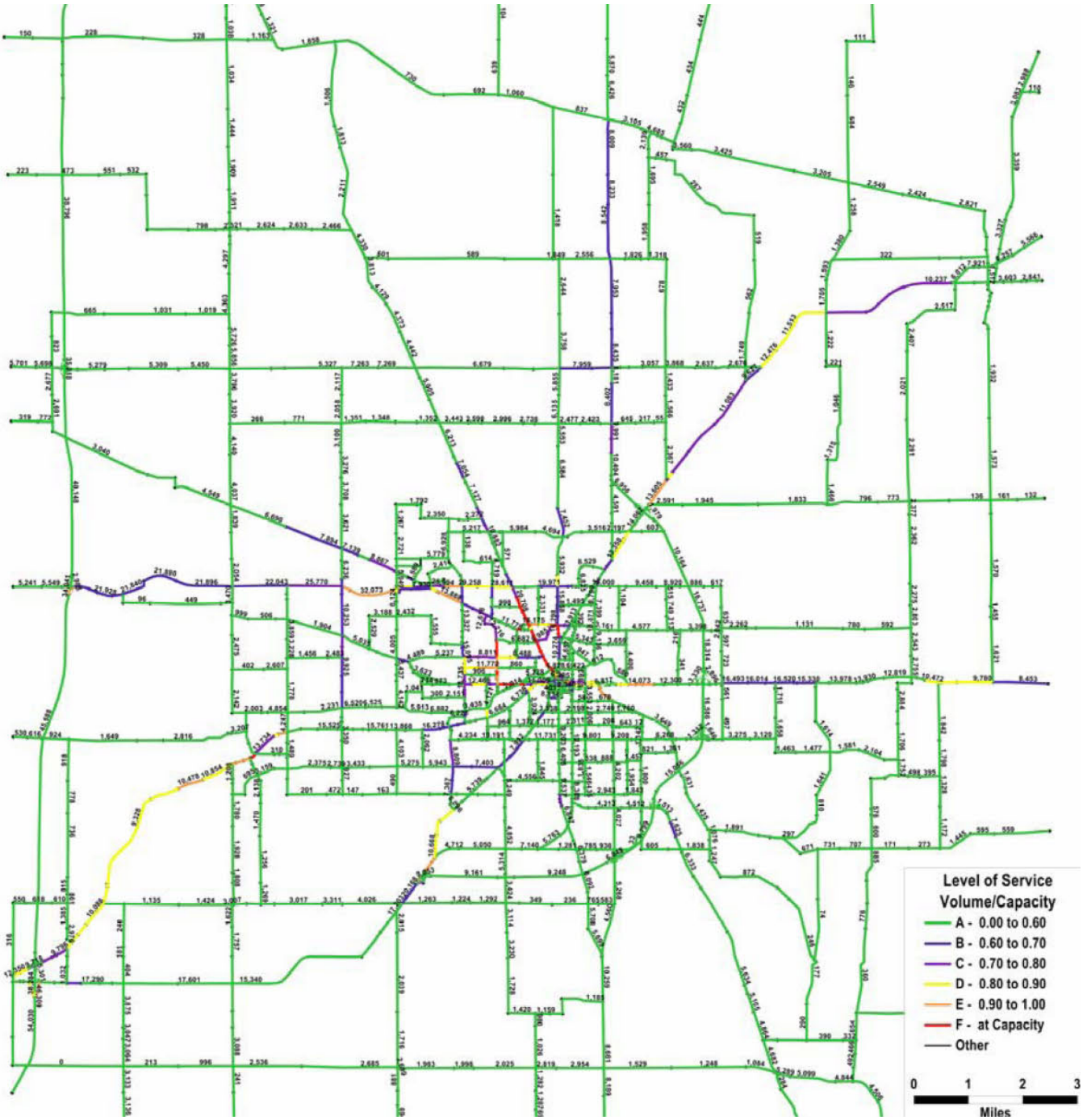
Year 2010 Traffic Model



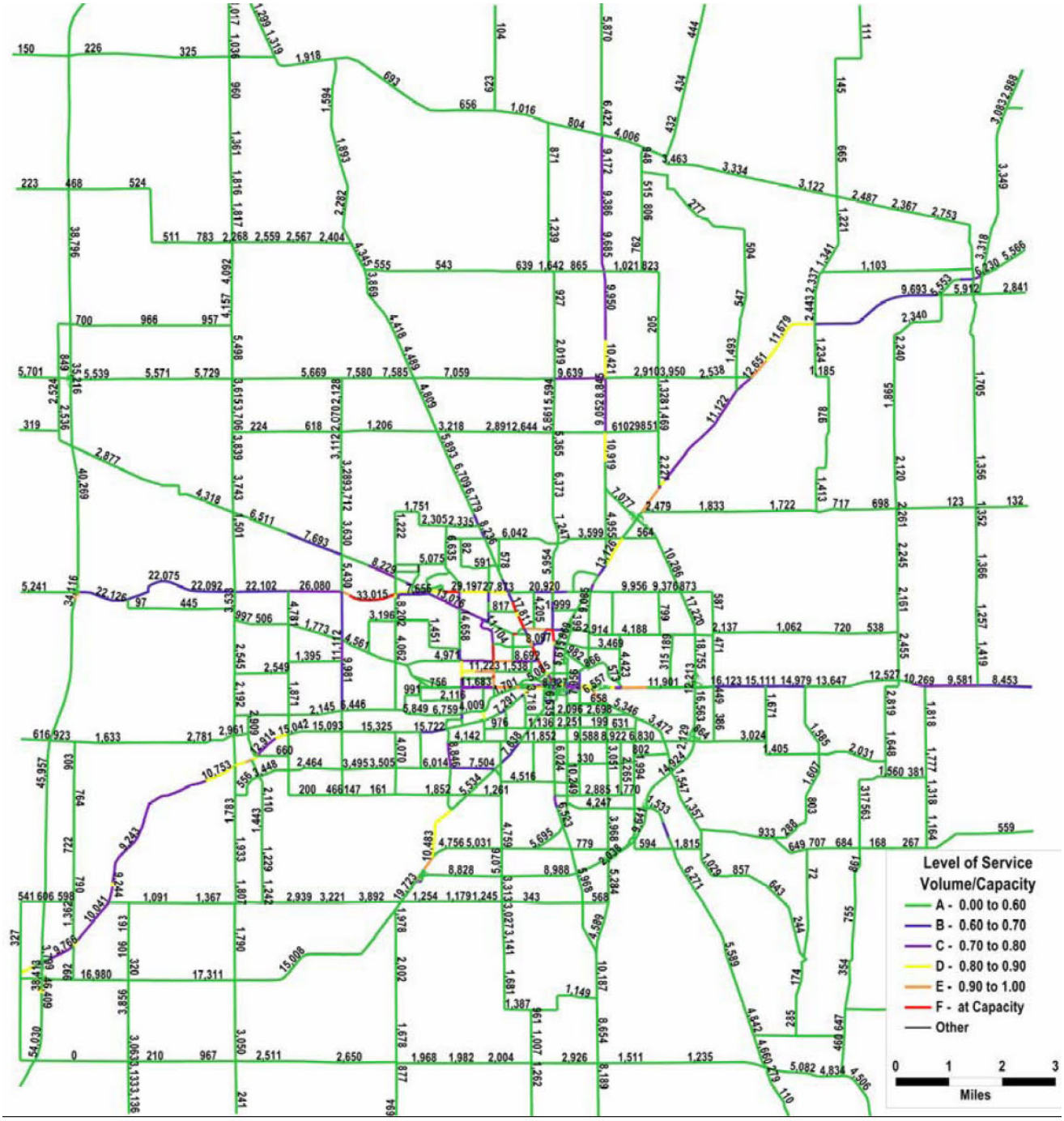


MODEL YEAR 2020

The heaviest traffic areas in our road network are on McGalliard, Tillotson and Wheeling. The red areas on the map are due to the model projecting more traffic than is actually on those road segments. Wheeling Avenue traffic flows smoothly although it has been near capacity from south of McGalliard Road to the Downtown. The traffic volume on Wheeling Avenue hasn't increased in the past decade. McGalliard Road is the busiest street with a big portion of the city's commerce, but still functions well. State Road 67 from Muncie to Albany has had peak hour congestion complaints although it has sufficient capacity. The route has two lanes so faster traffic is forced to slow behind any slow moving vehicles.



MODEL YEAR 2030



MODEL YEAR 2040

The number of accidents in Delaware County haven't been high, but some locations have persisted with patterns of crashes. The intersections that have had persistent accident problems are in the table below.

HIGHEST 2015-17 ACCIDENT RATES IN DELAWARE COUNTY

{Criteria: 9 acc.s/year}	DAILY	Number of Accidents					2015-	
INTERSECTIONS	**TRAFFIC**	**2013**	**2014**	**2015**	**2016**	**2017**	**2017**	**2017**
US 35 at McGalliard	**18,190**	7	10	14	18	26*	**2.91**	3.92
SR 332 at Nebo Rd	**24,815**	33*	16	20	24	17	**2.24**	1.88
Bethel at Tillotson	**34,890**	27	29*	28	27	19	**1.94**	1.49
McGalliard at Oakwood	**31,325**	11	20	17	24*	20	**1.78**	1.75
Memorial at Madison	**24,690**	9	12	15	19*	11	**1.66**	1.22

The Bypass (US 35) at McGalliard Road has a good design and INDOT continues to improve it, but the conflicts between turning traffic and fast through traffic at a signalized intersection have resulted in a high accident rate and serious injury crashes.

State Road (SR) 332 has a banked curve at its intersection with Nebo Road. INDOT has improved this location once and has a project to do more safety improvements.

Bethel at Tillotson is near the football stadium, other athletic fields, and the Ball State Alumni Center. Many of the drivers in the crashes have been young adults. The area has been improved for pedestrian traffic. Sight-distance problems for cars leaving the corner gas station were a factor in crashes.

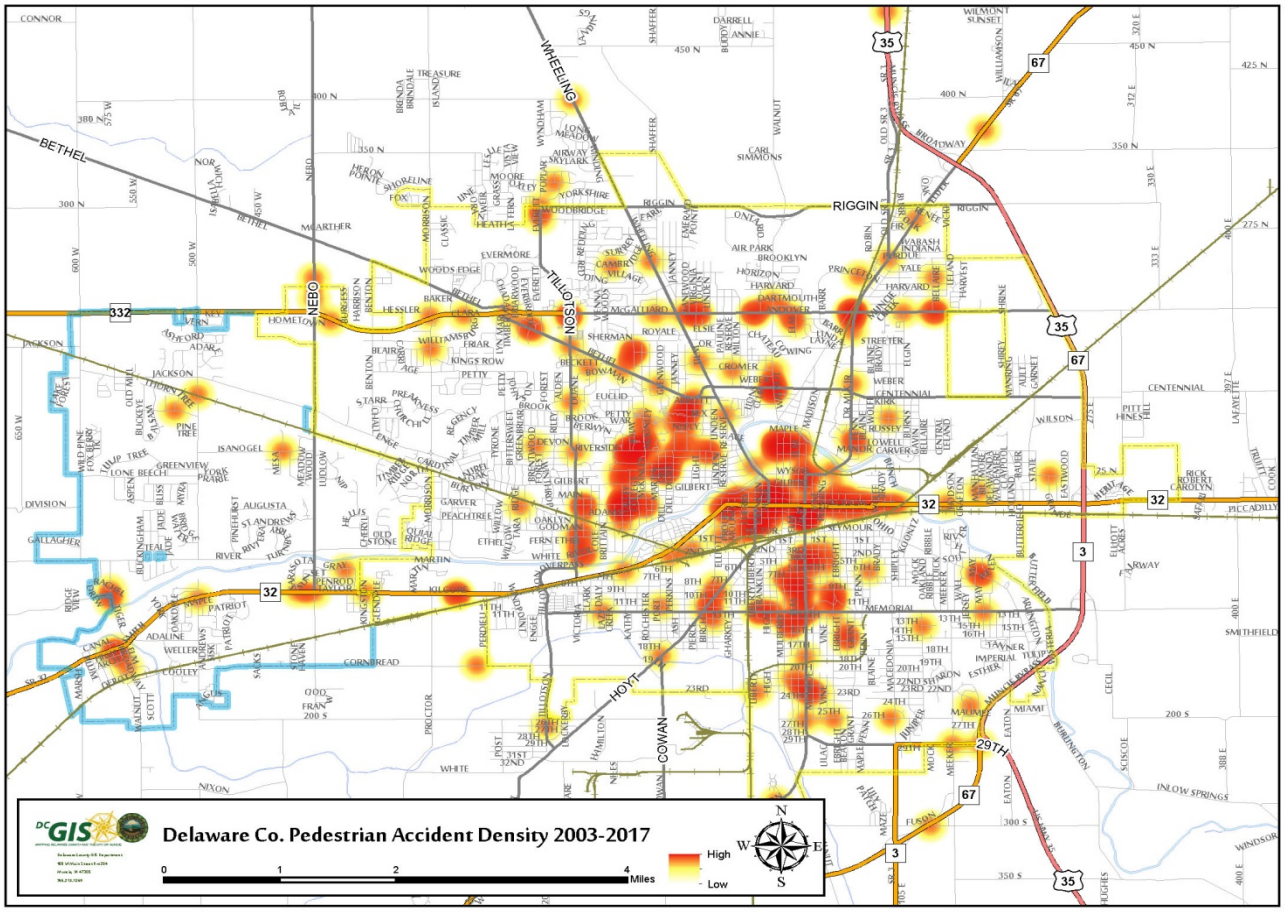
McGalliard at Oakwood has a significant number of younger and older drivers involved in crashes. A corner gas station has been a factor in some crashes.

Memorial at Madison has a corner parking lot and a corner gas station that figure in the crashes.

Two recurring factors have helped shape the problems that have resulted in some intersections having the highest accident rates: sight-distance and age. When drivers can't see possible conflicting traffic and assume their path is clear although it isn't, serious accidents occur. A major factor has been drivers turning left out of corner gas stations when traffic is backed up and they can't discern whether there is traffic that will conflict with their turn. It would be better for drivers to exit gas stations and parking lots by right turns only when the traffic is heavy.

A high percentage of accidents on McGalliard Road involve either young or older drivers. McGalliard Road is popular for a large portion of the shopping and eating at restaurants in Muncie, resulting in higher traffic volumes. When drivers are slow to respond or drive too aggressively or become confused in heavy traffic, the chances for an accident increases. The safest response to the stress of heavy traffic is patience and consistent good driving habits that limit the opportunities for mistakes.

Two maps on the next page show a density pattern for car-pedestrian crashes and car-bike crashes in the urban area during 2013-2017.


Delaware Co. Pedestrian Accident Density 2003-2017
DC GIS
0 1 2 4 Miles
High
Low
N
W
E
S
WHEELING
BETHEL
NEBO
TILLOTSON
RIGGIN
HOYT
COWAN
29TH
35
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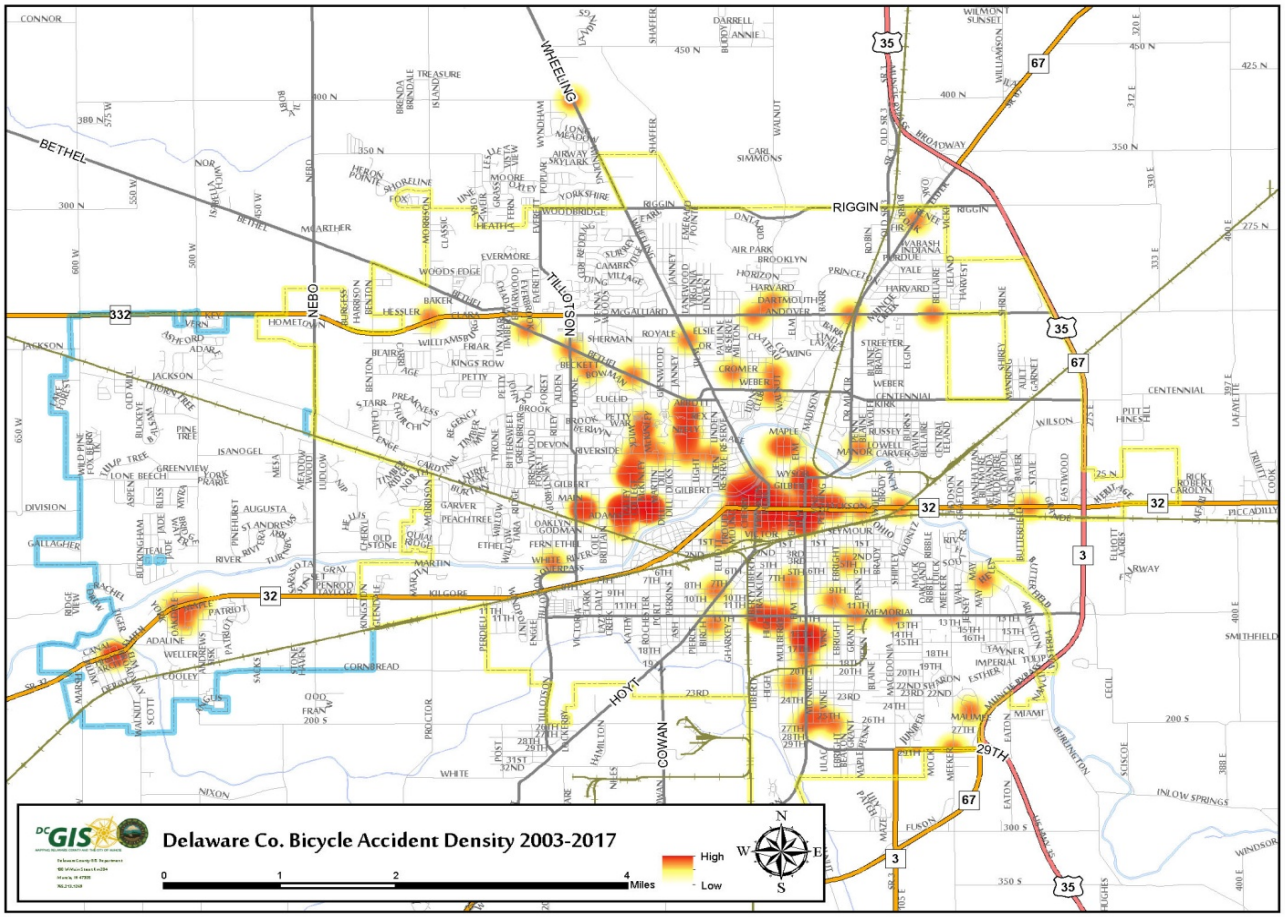
3


Delaware Co. Bicycle Accident Density 2003-2017
DC GIS
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High
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TILLOTSON
RIGGIN
HOYT
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SECTION VI
BICYCLE AND PEDESTRIAN PLAN

The Transportation Plan incorporates the Delaware-Muncie Bicycle and Pedestrian Plan in its entirety, as developed in 2018. This section will include excerpts from the Bicycle and Pedestrian Plan's document.

PROJECT OVERVIEW

The Delaware-Muncie Bicycle and Pedestrian Plan provides infrastructure and policy recommendations for Delaware County, Indiana and its incorporated cities and towns to improve the safety and quality of life for those who live, walk, or bicycle in the county. According to the United States Census Bureau[1], 116,852 people lived in the county as of 2015. The largest city in Delaware County is Muncie, Indiana, which consists of 69,010 people or 59% of the county population. The second largest incorporated area in the county is town of Yorktown, which has a population of 11,210 people, or 9.5% of the county population. Smaller incorporated areas throughout the county include the following:

Albany: 2,107 (1.8%)
Daleville: 1,598 (1.4%)
Eaton: 1,737 (1.5%)
Gaston: 863 (0.7%)
Selma: 839 (0.7%)

The remaining 29,488 (25.2%) residents of Delaware County live in unincorporated areas.

PROJECT IMPORTANCE

Bicycle and Pedestrian plans are important because they form the working document of future infrastructure and policy improvements for bicycles and pedestrians. Future sidewalks, bike lanes, shared-use paths, and other facilities will enhance transportation, health, environmental, and economical improvements in the county, which will contribute to an overall higher quality of life for residents and visitors.

TRANSPORTATION IMPROVEMENTS

Improvements to local infrastructure for bicycles and pedestrians will allow for more trips or activities to be made by alternate transportation modes. Fewer cars using public streets will relieve some on-going maintenance concerns, if enough people are walking and biking rather than driving. The benefits of these efforts are most likely to be realized on local and neighborhood streets.

HEALTH IMPROVEMENTS

The use of alternate transportation modes directly benefits the health of the user. Currently, Indiana ranks poorly compared to the rest of the country, ranking as the 7th highest rate for obesity. Additionally, Hoosiers paid $3.5 billion in obesity-related medical costs in 2012. More concerning, 30% of Indiana youth are considered overweight or obese which would indicate that future obesity related healthcare cost will continue to increase[2]. It is imperative that public infrastructure, both for cyclists and pedestrians, be provided and be intuitive to use so that they are a part of a daily routine.

ENVIRONMENTAL IMPROVEMENTS

Alternate transportation results in the use of less automobile traffic and thus, less greenhouse gas emissions in the environment. Nearly two-thirds of all vehicle trips (63%) have a total of less than 5 miles. Unfortunately, less than 2% of these trips are made on bicycle. If infrastructure and policy improvements can be made, a majority of local trips can be car-less and as a result provide for a higher quality environment[3].

Additionally, trees and landscape improvements provided with new sidewalks or shared-use paths improve the quality of the environment as well.

ECONOMIC IMPROVEMENTS

The average cost to own a car rose to $8,469 per year in 2017 according to Experian, AAA, and the Bureau of Labor Statistics. For many residents of Delaware County, the cost to own, insure, and maintain a car is not financially feasible. If properly planned, bicycle and pedestrian infrastructure can link neighborhoods, employers, and destinations; local residents will see a direct financial improvement.

Neighborhoods and business districts with improved public infrastructure such as sidewalks and shared-use paths will have higher land values, as these properties will be considered better connected and more easily accessible.

Investment in public infrastructure is important as a economic driver as well. Cities and Towns that have new sidewalks, shared-use paths, and bike lanes may be viewed more favorably by private-sector businesses looking to locate their headquarters.

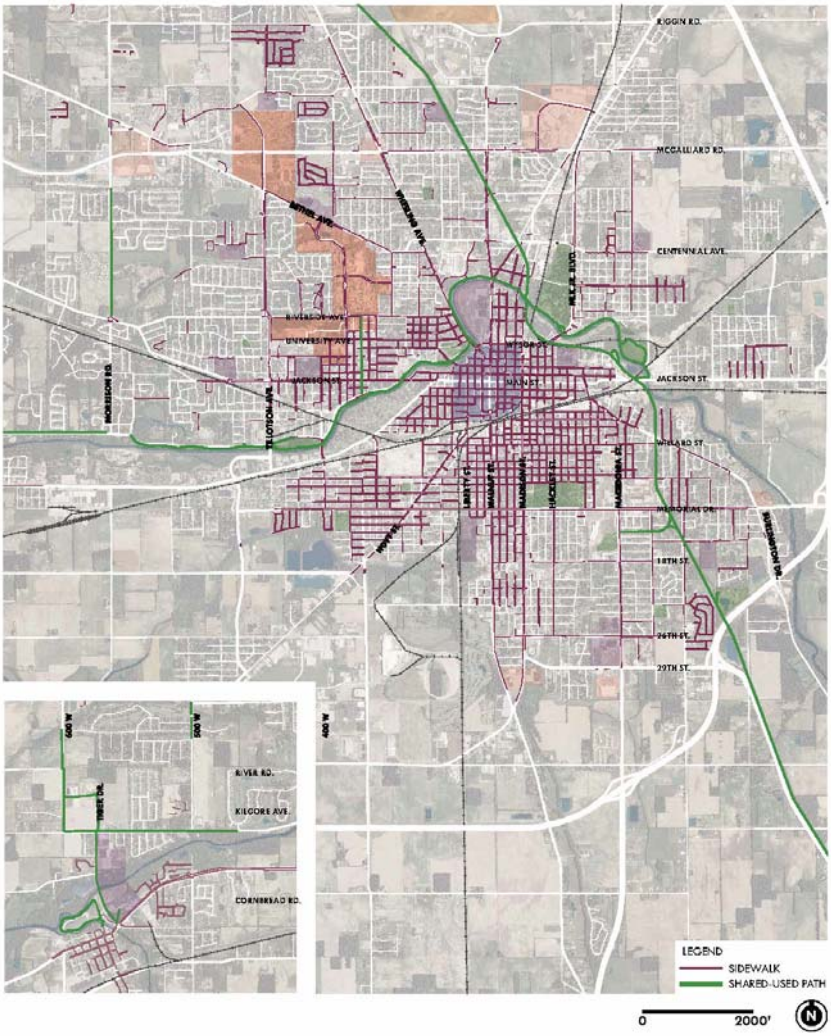
SUMMARY

A report published by the League of American Bicyclists and the alliance for Biking and Walking[4], summarizes the importance of alternate transportation modes:

Bicycling [and walking] is popular across America among all types of people. Communities that have fostered that popularity by providing bicycle infrastructure for transportation and recreation have seen considerable economic benefits by attracting businesses, tourism, and active residents.

Neighborhoods become more desirable when traffic slows down and residents have more transportation choices. Business can encourage shopping among loyal, local customers by making getting there by bike more appealing. Individuals benefit from increased levels of fitness and health that result in real cost savings and employers have healthier employees who miss fewer days of work.

Existing Shared-Use Trails & Sidewalks - Muncie & Yorktown



SHARED-USE TRAILS AND SIDEWALKS

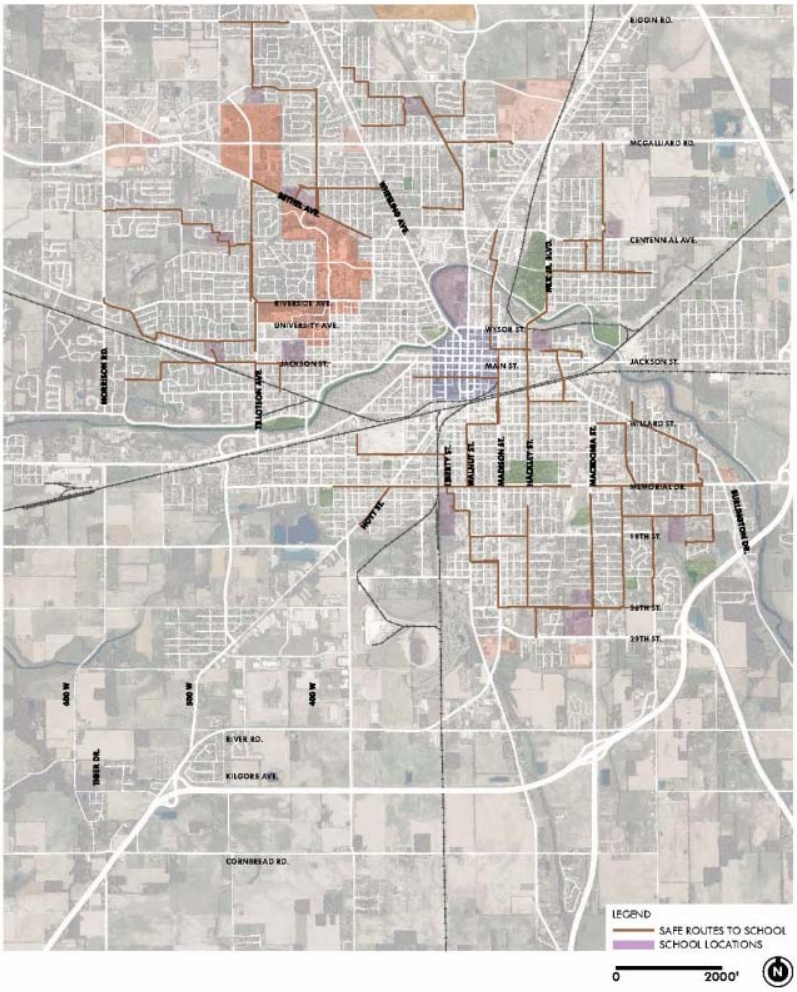
Shared-use paths are intended for cyclists and pedestrians. They should be a minimum of 10' wide, however 8' wide trails may be required depending upon the existing conditions. Shared-use paths also must be a minimum distance from adjacent vehicle travel lanes. This distance varies depending upon is a curb is present, on-street parking, and vehicle travel speeds.

The major shared-use trails in the Muncie and Yorktown area are the Cardinal Greenway and the White River Greenway. These trails have regional connections but also provide important access to local destinations.

Sidewalks are intended for pedestrian traffic only. If located adjacent to the back-of-curb, they must be a minimum of 6' wide. Sidewalks located more than 2' away from back of curb must be at least 5' wide.

Sidewalks also provide the needed infrastructure for pedestrian transportation to local destinations. They are also a very effective means of identifying the edge of right-of-way, or where private property begins. The highest and most dense concentrations of sidewalks is located near downtown Muncie, south of the White River. However, sidewalks are less common and more sporadic the further one travels from downtown Muncie. Similarly, sidewalks are located in downtown Yorktown, but few are located in the surrounding neighborhoods.

Existing Safe Routes to School - Muncie & Yorktown



SAFE ROUTES TO SCHOOL

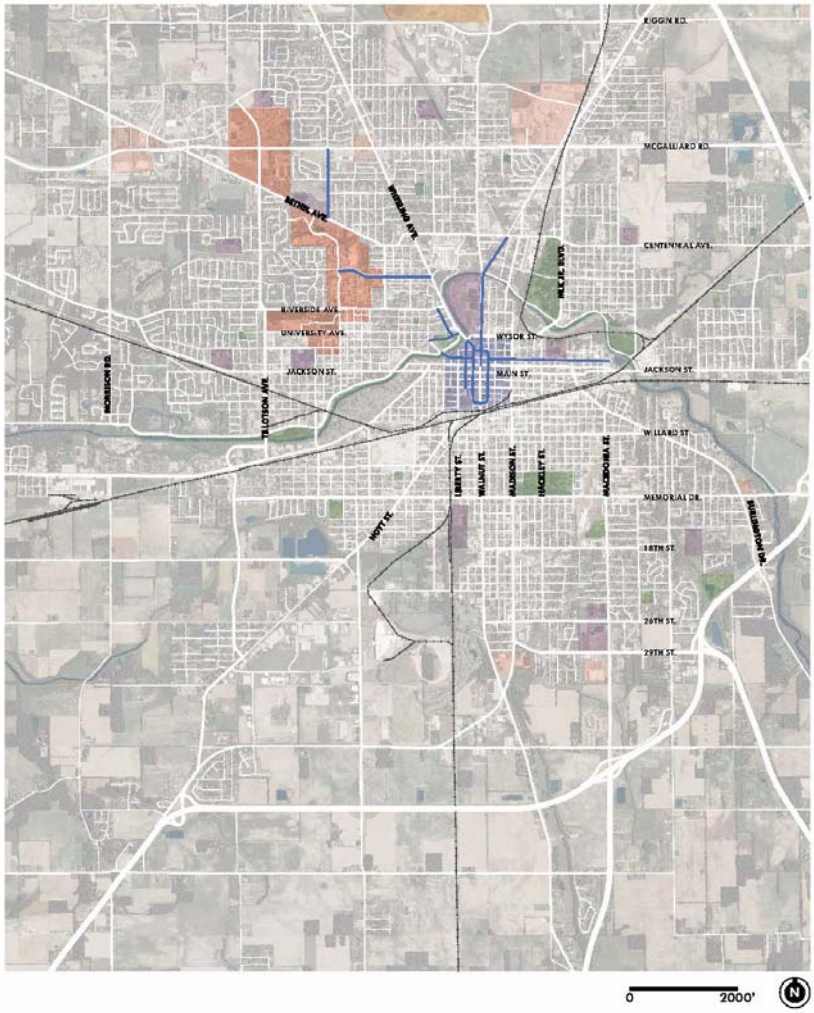
Safe Routes to School (SRTS) is a nationwide organization and program designed to provide safe routes for children who are walking and bicycling to school. Funding is available for communities and school districts to construct new or improved sidewalk and shared-use path infrastructure.

The location of these routes was considered when developing a Bike and Pedestrian Master Plan for the City of Muncie. If existing SRTS can be further developed as part of a comprehensive trail system, the City could benefit from Federal funding that can be used to develop a proposed network of routes.

Providing safe dedicated routes for children to get to school has positive health impacts as well. According to the 2016 Indiana Safe Routes to School Guidebook[5]:

> "Walking and biking to school helps children feel more connected to their community and increases their confidence that school is a safe place for learning. Studies have shown kids who walk and bike to school arrive more alert and ready to learn. Bicycling and walking to school helps establish a healthy active lifestyle from an early age. Generally, increased physical activity among school-aged children contributes to their improved health. Furthermore, cities and towns with established SRTS programs report a stronger sense of community identity and increased social skills among the children."

Existing On-Street Bicycle Lanes - Muncie



BIKE LANES

The City of Muncie currently utilizes bike lanes near downtown Muncie and Ball State University. Bike lanes are beneficial to the community as they provide safer routes connecting to local destinations and have also been shown to make vehicle travel safer, as they reduce travel lane width and reduce vehicle speeds as they remind motorists that cyclists may be present[6].

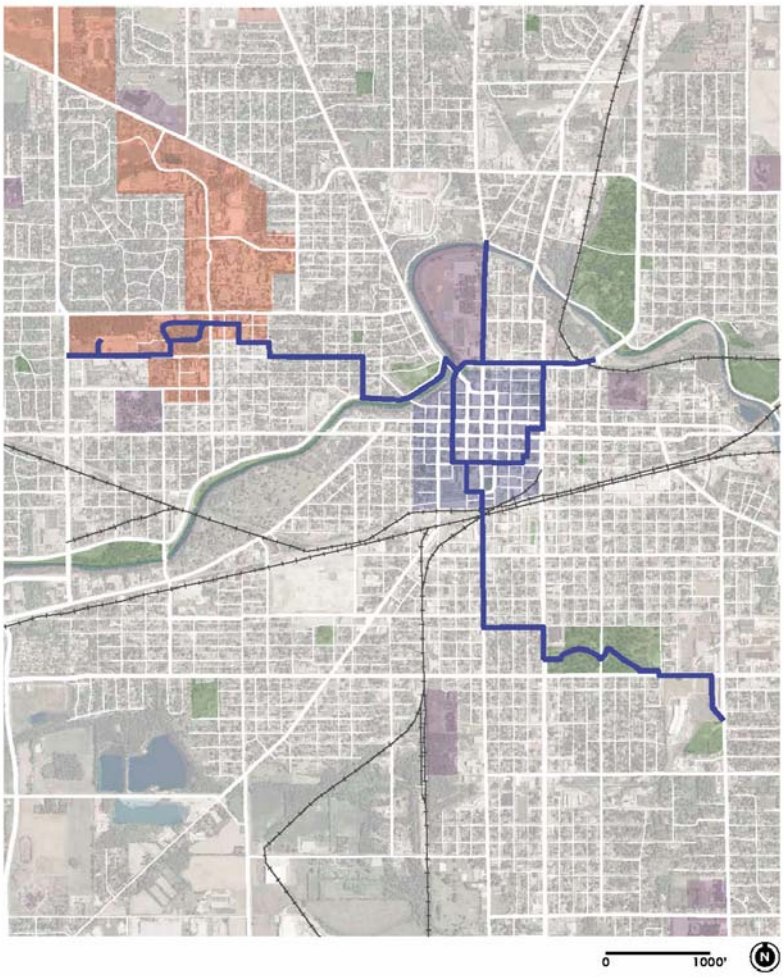
Bike lane pavement markings also provide dedicated space where cyclists can feel safe. By removing cyclists from vehicle travel lanes, motorists and cyclists each feel safer knowing they each have dedicated space for travel.

Current trends have typically pushed for protected or separated bike lanes, as they provide enhanced levels of safety. Depending upon the traffic counts and type of existing roadways, bike lanes may be more than adequate as a safe means of bicycling.

Bike lanes are located on the following streets:

- N. Granville Ave
- N. Walnut St
- High St (one-way south)
- Mulberry St (one-way north)
- Oakwood St
- Neely Ave
- North St (one-way west)
- Alameda Ave (one-way south)

Muncie Art and Culture Trail Plan



PROPOSED ROUTING AND IMPLEMENTATION

The Muncie Art and Culture Trail (MACT) is a separated cycle track and pedestrian sidewalk system proposed by the city of Muncie. The trail utilizes public right-of-way to connect Ball State University and IU Health Ball Memorial Hospital; downtown Muncie; and the south Muncie neighborhoods and Heekin Park.

The following text is an overview of the project, as noted on page five of the report:

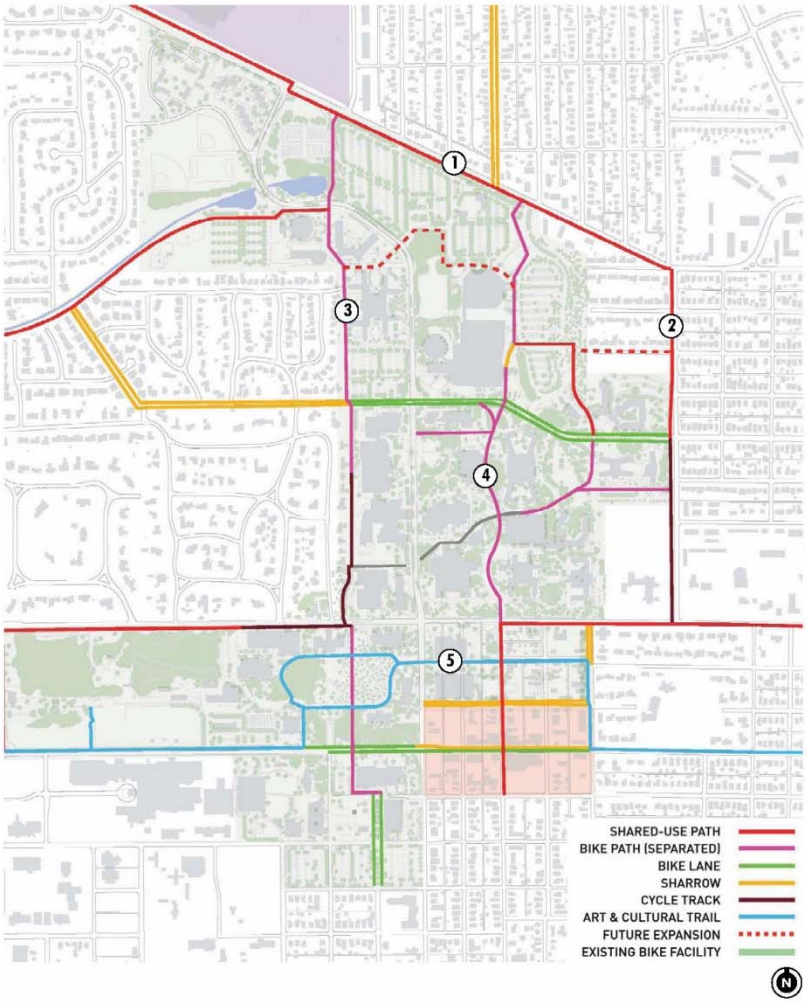
> "Known as the Muncie Arts & Culture Trail (MACT), this facility is intended to be more than a greenway or bicycle lane. The Muncie Arts & Culture Trail is a multi-use path and urban amenity that will become a branding tool and destination facility for the City of Muncie. Designed for use by individuals, children, and families alike, this facility will be separated from the vehicular roadway and will provide opportunities for walkers, joggers, runners, bicyclists, roller bladers, and others to safely access the City's existing bicycle facilities, parks, public art, schools, historic neighborhoods, and business districts."

The White River Greenway and the Cardinal Greenway also connect to the proposed MACT. The recommendations as part of this study also look to connect to the proposed MACT, leveraging the value of the proposed infrastructure.

According to the MACT planning documents, the project is proposed to occur in three phases, but an implementation timeline has yet to be established:

- Connection to Ball State University and IU Health Ball Memorial Hospital
- Downtown Loop
- Heekin Park connection

Ball State University Bicycle Master Plan



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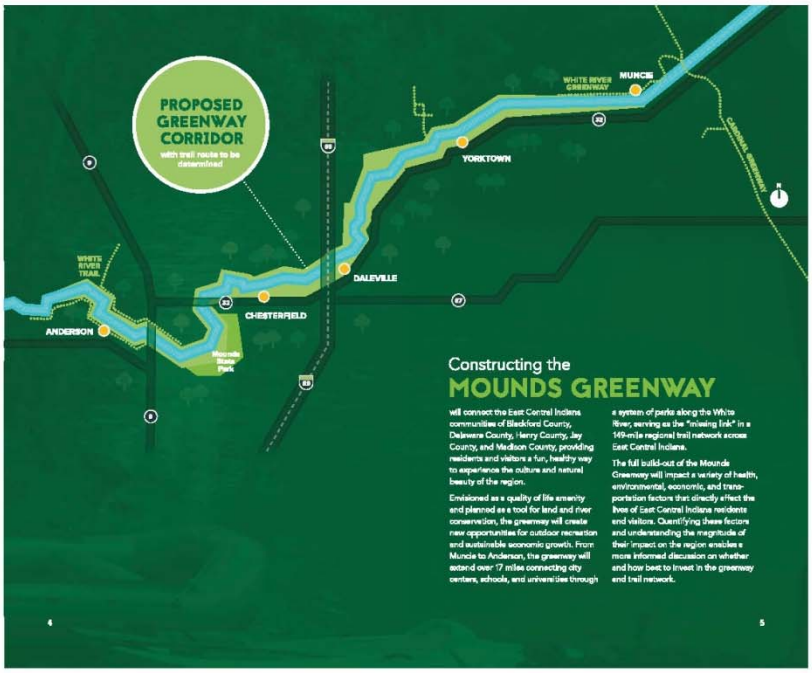
BALL STATE UNIVERSITY BICYCLE MASTER PLAN

Completed in 2017, the Ball State Bicycle Master Plan recommends routes within and around the campus. These routes were utilized within the larger Delaware-Muncie Bicycle and Pedestrian Master Plan. Important routes that will require coordination between the University and the City of Muncie include the following:

1. Adjust Bethel to provide for a shared-use path
2. On New York Avenue, provide a shared-use north of Neely and a cycle track south of Neely.
3. Enhance the cow-path bike path to connect from Bethel to the Student Center
4. Provide a separated bike path as the "East Mall," which connects from Bethel to Martin Street. The recently completed improvements on Martin Street connect to the White River Greenway.
5. Implement the Muncie Art and Cultural Trail through campus

These five improvements represent important connections between campus and the surrounding city. These improvements are considered part of the Ball State University Master Plan, but are fully supported by the recommendations of the Delaware-Muncie Bike and Pedestrian Master Plan. Furthermore, the recommendations of the Ball State University Bicycle Master Plan have been incorporated into this planning document. Refer to specific recommendations in the Implementation Section of this report for additional information and cross sections.

Mounds Greenway Planning Efforts



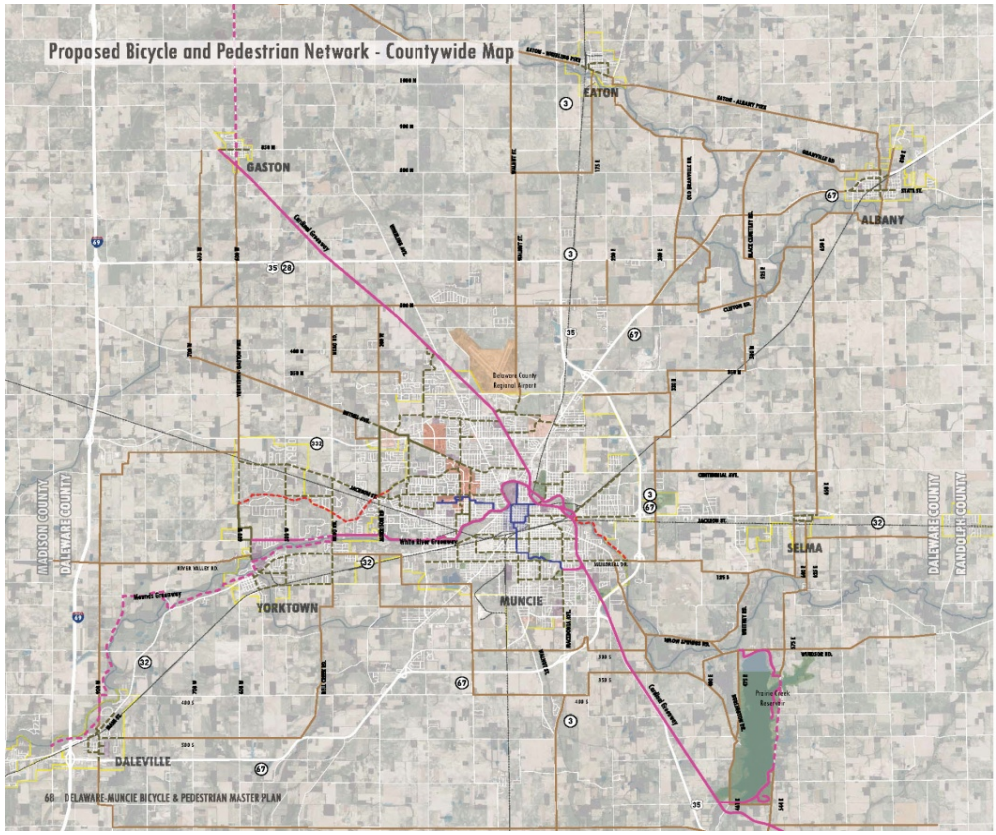
The illustration above was included as part of the report, *Meet at the Mounds, An Economic, Health, and Environmental Benefits Analysis,* which was produced by Alta Planning and Design for the Hoosier Environmental Council.

OVERVIEW OF THE MOUNDS GREENWAY

Establishing regional connections to Delaware County and it's cities and town is important. A potential future connect is the Mounds Greenway. Reports have been completed and are still under study to determine the opportunities and constraints with implementing such a project. Multiple municipalities, including representation from Muncie, have supported the efforts to plan and construct such a trail.

The following exert was described in the report from the Hoosier Environmental Council's (HEC), The Case for the Mounds Greenway. Additional information regarding the HEC report can be acquired by contacting Bob Weaver, Mounds Greenway Campaign Manager for the HEC.

> The Mounds Greenway will be a linear park and trail connecting the trails and parks of Muncie to the trails and parks of Anderson and the communities in between. The Greenway and Conservation Area will protect the West Fork White River as a free-flowing natural river and also conserve bottomland hardwood forest, wetlands, and riparian habitats in the river's floodplain – an area roughly 2,300 acres in size.
>
> Ownership and management of the Mounds Greenway is to be determined, but it could be a state project or a partnership of state and local governments and private organizations.
>
> The Greenway will provide a variety of quality outdoor recreational opportunities – trails for hiking and bike riding, river access points for canoeing, kayaking and fishing, picnic and camping areas, and wildlife observation.
>
> Cultural and historic features will be noted and protected. An Interpretive Center at Rangeline Preserve will offer displays and other learning opportunities about the West Fork White River valley. Once completed, the Mounds Greenway's trails will allow a hiker or bicyclist to travel from the Cardinal Greenway in Muncie to Mounds State Park to the Anderson city trail system.
>
> Along the way, Greenway visitors and local residents can enjoy the variety of restaurants, brewpubs, coffee shops and retailers which will be attracted to the riverside "villages" in the communities along the river.
>
> The greenway will complement and be compatible with existing public outdoor lands and cultural sites, including Mounds State Park, Rangeline Preserve, Walbridge Acres Park, Camp Chesterfield and other facilities[10].



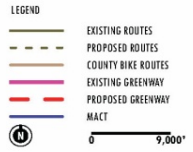
EXISTING

The Bicycle and Pedestrian Master Plan proposes enhancements routes for future bicycle and pedestrian.

The routes developed in this plan are based on previous studies, inventory of existing facilities, online and public meeting survey results, residential and job density data, traffic counts and right-of-way opportunities.

The recommended routes will provide connections to local and regional greenway systems. The routes also provide safe and accessible experiences through out the community. Along with on-street facilities, extensions of existing greenway system have been proposed.

In order to provide safe and most user-friendly routes, shared-use facility were often recommended.



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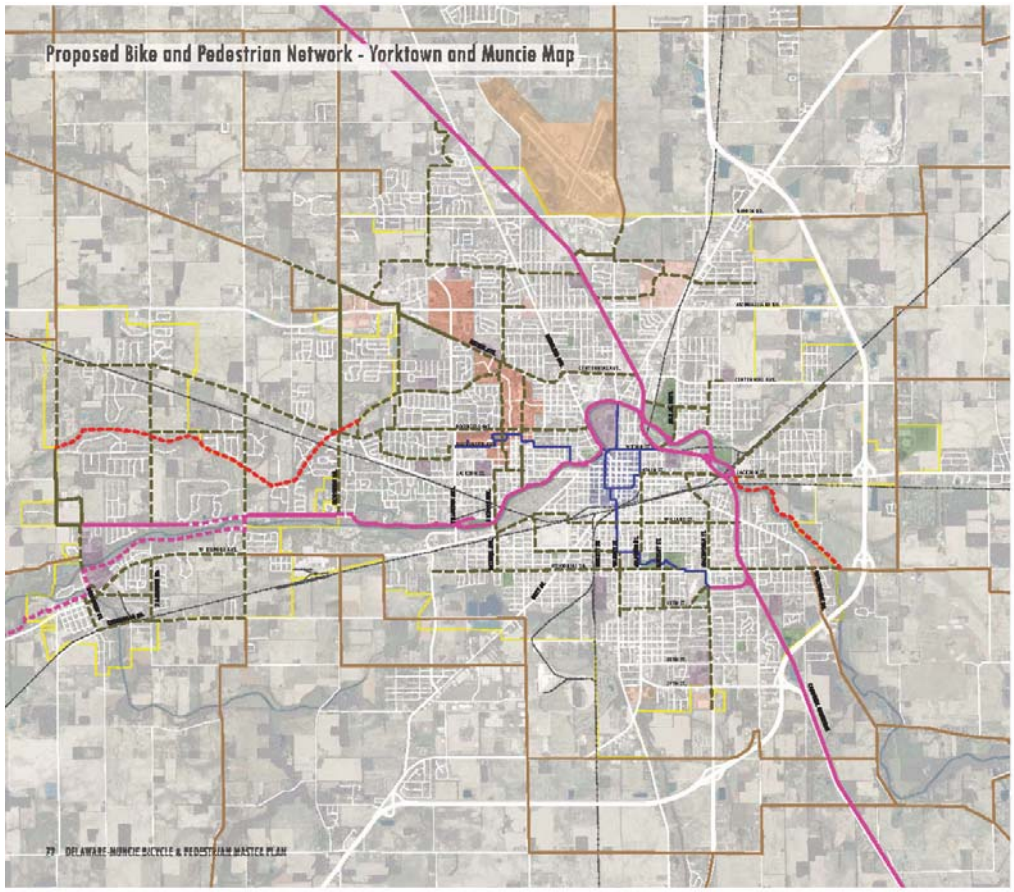
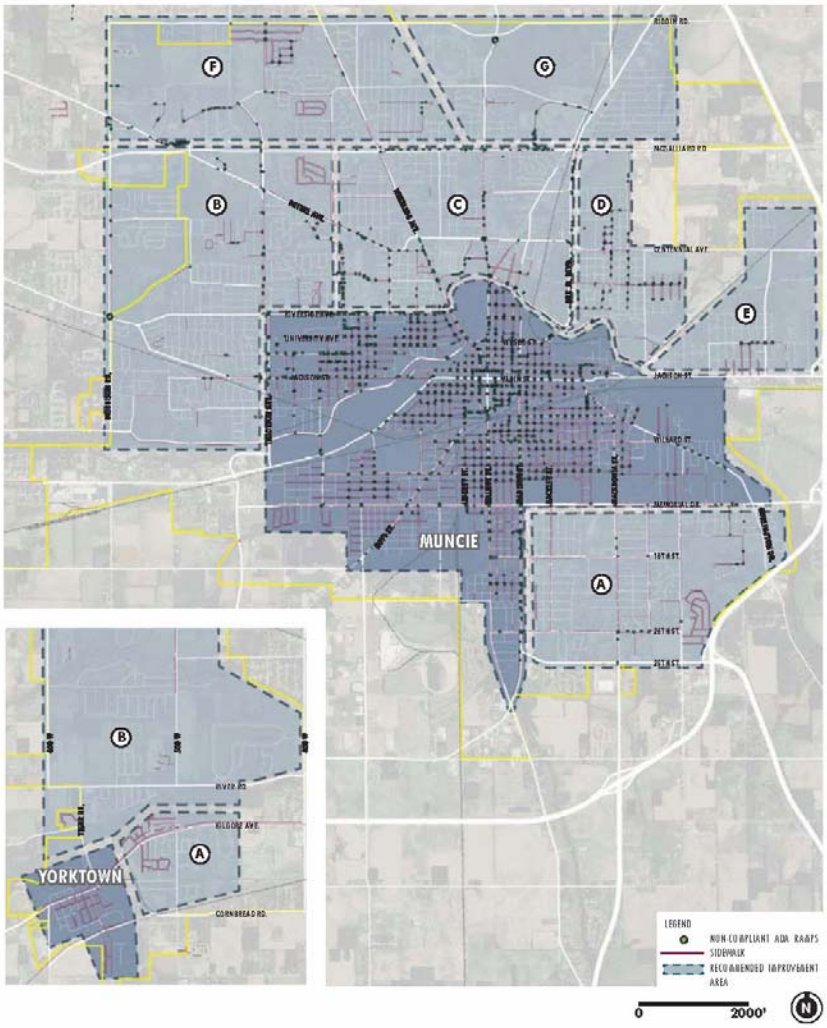


Sidewalk Improvement Plan - Muncie & Yorktown



OVERVIEW

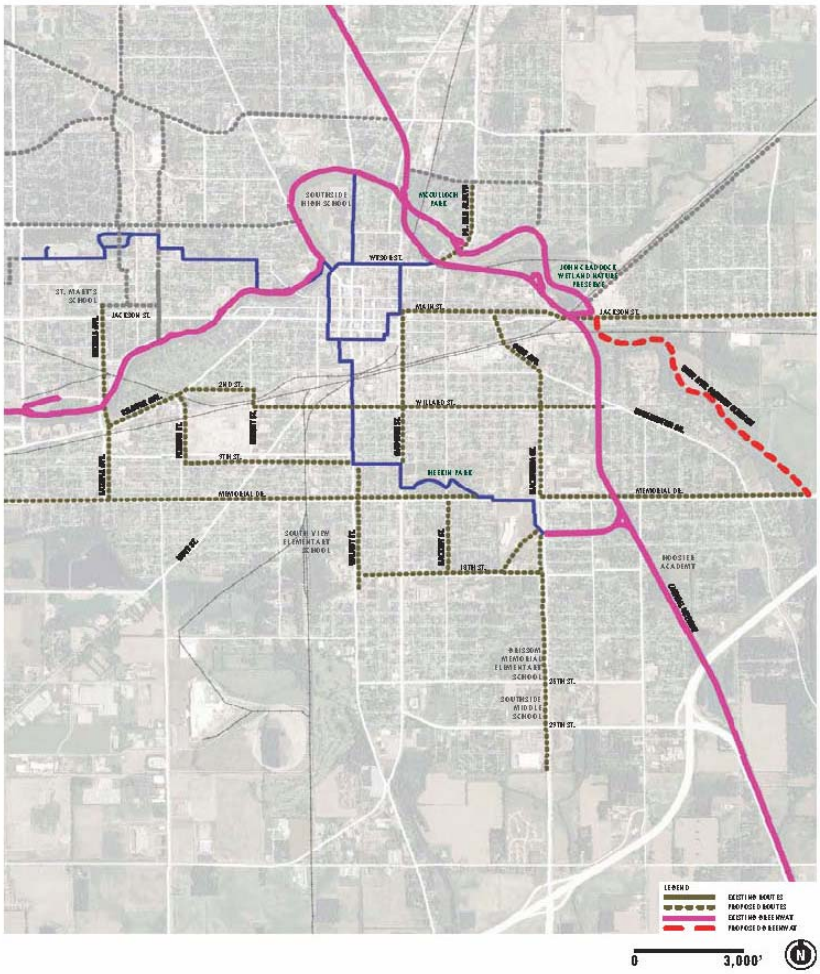
Sidewalk systems are critical for short-distance transportation and creating more connected neighborhoods. The sidewalk improvement plan identifies areas of Muncie for focused sidewalk improvement. The graphic to the left identifies area of sidewalks improvement locations in Muncie, but does not provide data on sidewalk quality. However, curb ramps that are not ADA compliant have been marked with a dot indicating their location.

Downtown Muncie has the most be connected system of sidewalks., but as a result of having more sidewalks, most of the non-compliant ADA ramps are located near downtown Muncie as well. The city should focus on replacing curb ramps to be ADA compliant within this area of the city. A connected system of sidewalks that is not available to people of all abilities is not inclusive and serving their intended purpose.

Moving outward from the downtown core, sidewalks are provided in fewer areas compared to around downtown Muncie. Muncie Subareas A, C, and D should be the first focus locations for new sidewalks. These subareas have a below-average (50%) coverage of existing sidewalks with fewer non-compliant ADA ramps. Providing new sidewalks in these areas would better connect fairly dense neighborhoods to surrounding amenities, including local businesses, employers, and Ball State University. Similarly, sidewalk improvement should focus on Yorktown subarea A. More sidewalks in this area would better connect residents to downtown Yorktown and events that may be occurring at Yorktown schools.

Muncie subareas B, F, E, and G and Yorktown subarea B have the fewest sidewalks as compared to other areas. New sidewalks should be provided in these areas, but implementation will more than likely occur over a longer period of time since a significant amount of new sidewalks are needed.

South Muncie



EXISTING

The existing pedestrian network provides coverage to many of the neighborhoods that surround downtown Muncie. In addition to the White River Greenway and Cardinal Greenway, the future Muncie Art and Culture Trail (MACT) will loop around downtown, connect to Ball State University, and connect to Heekin Park in south Muncie.

RECOMMENDATIONS

Aimed to improve bike and pedestrian access through the entire city and county, the proposed trail system will be able to connect popular destinations and local neighborhoods.

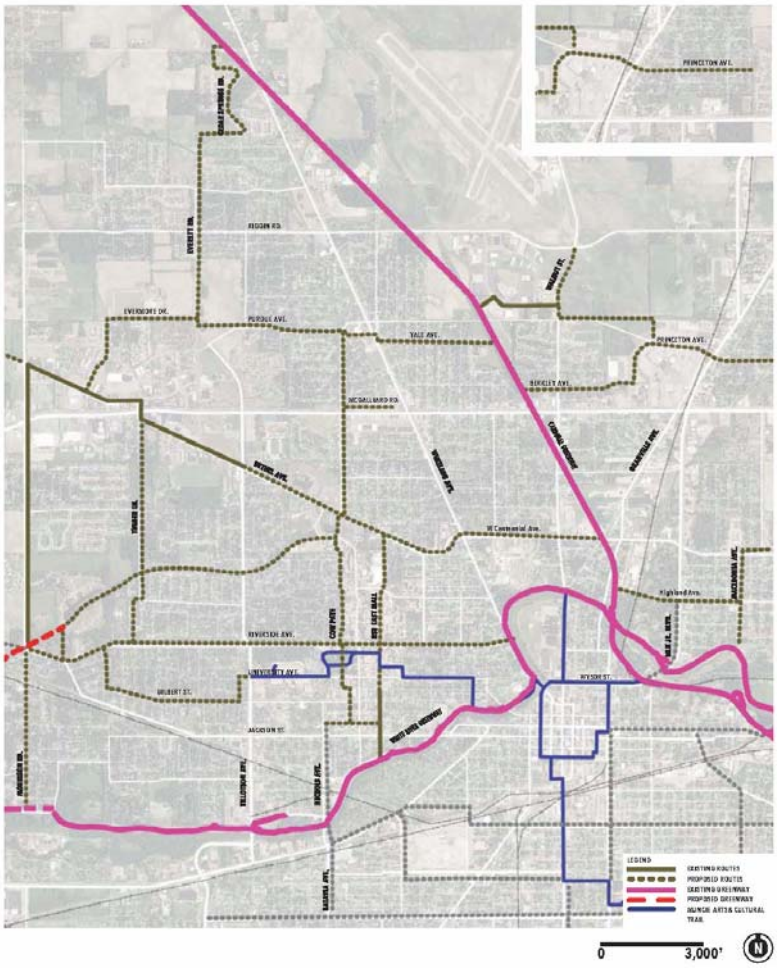
The proposed bicycle and pedestrian network recommends the following routes:

- Memorial Dr.
- Willard St. - 2nd st. - Kilgore Ave. corridor
- Main St.
- Wysor St.
- Walnut St.
- Madison St.
- Macedonia Ave. - Ohio Ave.
- Nicholes/Batavia Ave.

The sections on the following pages will demonstrate details of the potential routes.

Bike Fest in 2017

North Muncie



EXISTING

The Muncie North area southern boundary is the White River Greenway. It extends north to the Delaware County Airport.

There are multiple trails in this area, which include the Cardinal Greenway and the White River Greenway. The Ball State University Bicycle Master Plan provides future connections through and around the university's campus and the proposed MACT provides connections to downtown.

This area presents a higher number of educational institutions, especially on the west side of the Cardinal Greenway. Six schools and the Ball State University are located very close to one another.

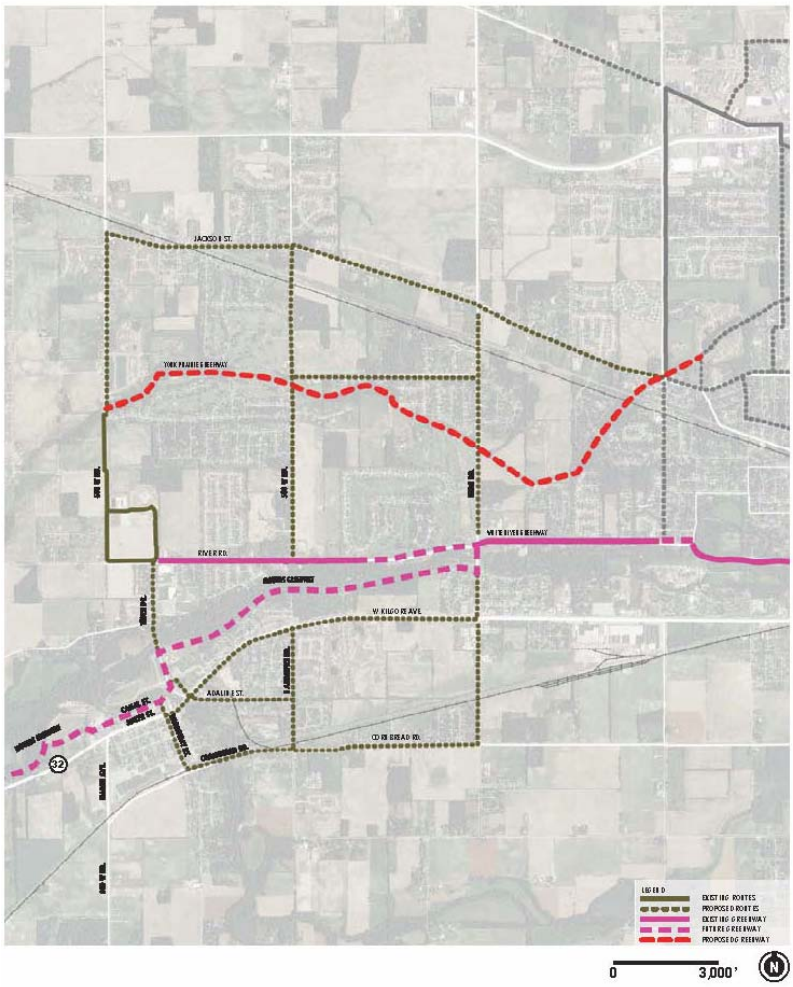
This area of Muncie has six schools that trail connections should be made too. Dense neighborhoods located in this study area include the following:

- Lantern-Pearwood-Keller
- Halteman
- Norwood
- Anthony
- Riverside/Normal City
- Westside
- Morningside

Retail businesses are highly concentrated along McGalliard Rd. which is also one of the busiest roads in the city. Trail connections are proposed to improve connectivity to these businesses.

Wysor St. Trail Head - Bike Fest 2017

Yorktown



EXISTING

Bicycle and pedestrian routes in Yorktown begin west of Morrison Rd.

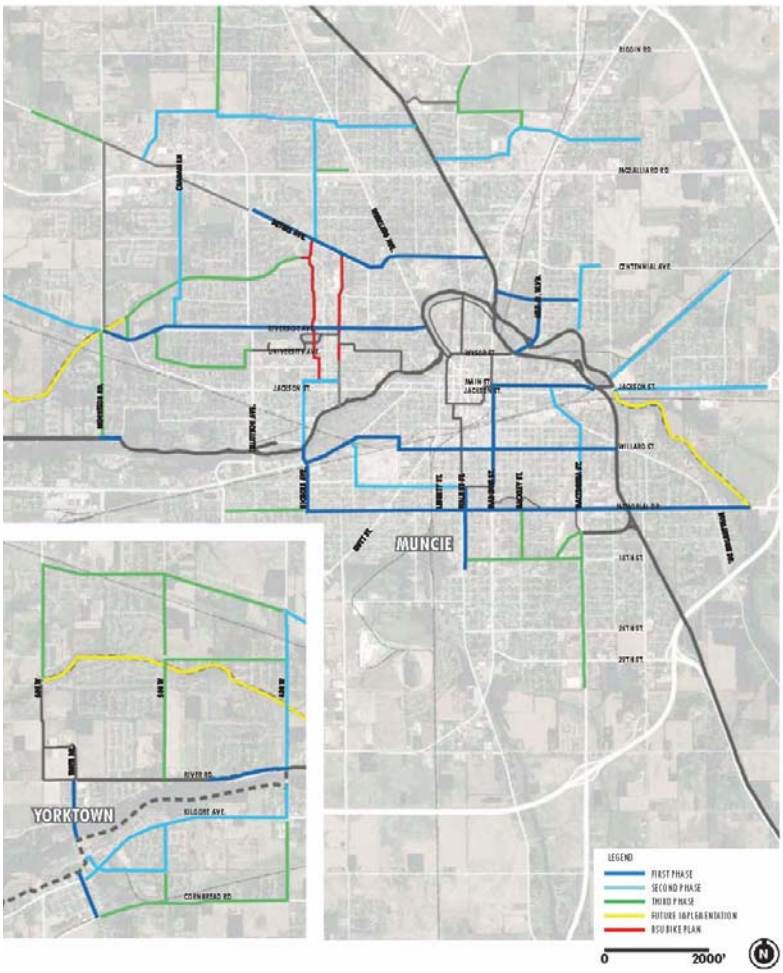
The White River Greenway and the proposed Mounds Greenway connect Yorktown to Muncie and other potential regional destinations. The proposed York Prairie Greenway will provide an additional inter-neighborhood connection.

The densest residential areas are near Smith Street and S. Andrews Rd., which should have trail connection.

Trails are proposed to connect the businesses in downtown Muncie with the surrounding neighborhoods.


SR 32 / Smith St.

Trail Implementation Plan - Muncie & Yorktown



PHASING PLAN

The phasing plan for bicycle and pedestrian facilities identified in this plan focus around downtown Muncie, and radiate out from the core.

First Phase projects link directly with downtown Muncie, or provide a critical connection to a particular area of need in the City. Job Density analysis and Residential Density analysis were used to determine what projects should be consider first. Refer to the Muncie Art and Culture Trail scoping report for a phasing strategy of this project. This plan does not make recommendations for its implementation schedule. Plans specific to Ball State University should be coordinate with the University's Bicycle Master Plan.

PLANNING COSTS

Below are planning level costs that Delaware County and City of Muncie can use to determine or assist with future implementation considerations.

Facility Type	Facility Width	Material Type	Linear Foot Cost
Sidewalk	6'	Concrete	$48
Sidewalk	8'	Concrete	$65
Sidewalk	10'	Concrete	$80
Shared Use Path	8'	Asphalt	$45
Shared Use Path	10'	Asphalt	$58
Shared Use Path	12'	Asphalt	$60
Sharrows	n/a	Pavement Markings, signage	$5
Bike Lanes, one in-each direction	5'	Pavement Markings, signage	$12
Two-Way Protected Bike Lanes*	8', with 2' min. buffer & bollards	Pavement Markings, signage	$28
Cycle Track*	8', with 3' buffer	Unit Pavers	$220
Cycle Track*	10', with 3' buffer	Unit Pavers	$260
Cycle Track, Amenities & Street Infrastr.	8', with 3' buffer	Unit Pavers, lighting, infrastructure, etc.	$1,750

*Only includes costs for actual bicycle/pedestrian facility. Does not include site amenities, new adjacent sidewalks, or infrastructure costs.

All costs include hard construction costs only, based on 2018 pricing. Design, contingency, construction administration, survey and all other soft costs are not included.

SECTION VII

LONG RANGE TRANSPORTATION SYSTEM PLAN

The major elements of this transportation plan include the surface transportation components of roads, bridges, railroads, airport, trucking, bicycle, pedestrian, and public transit. The railroad, airport and trucking components depend heavily on the private entities involved, but must be tied into the rest of the transportation system using the other components of surface transportation. The roads leading to railroad switching facilities, airport terminals, and truck terminals are common connections that must be maintained for an intermodal vehicular transportation system. However, transit and bicycle/pedestrian networks also need further development to expand the intermodal options of the transportation system that also benefit air quality.

The circular interconnections between various transportation networks is considered an inherent foundation for developing this transportation plan. An airport served by an efficient road network, a good trucking network, consistent transit service, and good bicycle/pedestrian access can enhance the attractiveness of air travel by allowing a variety of mobility options to and from available flights. A good railroad switching operation freight facility connects rail and trucking freight movement options in a manner that enhances both industries. Good transit service and bicycle/pedestrian networks enhance the vehicle traffic flow on roads and supplement the road network's capacity for moving people.

Safety is an additional factor toward developing intermodal options. The provision of sidewalks allows pedestrian traffic to move safely off the roadway and away from conflicts with vehicle traffic. A good bicycle network reduces the potential for conflict with motor vehicles and enhances the attractiveness of this form of non-motorized travel. Comprehensive transit service reduces vehicle congestion and expands pedestrian trip options. Lower congestion provides safer roadways through fewer conflicts between vehicles. Better non-driving travel options permit those who shouldn't drive to be mobile without driving.

Good mobility requires an efficient roadway network with good pavement, bridges and traffic controls that allow traffic to flow smoothly and safely. A good roadway network is the basis from which intermodal options can be developed. The maintenance of both motorized and non-motorized travel facilities is necessary to enhance both options within the transportation system because they affect the efficiency of each other.

The Delaware-Muncie Transportation Plan includes strategies for developing a surface transportation system from a multi-modal, intermodal standpoint. Through updated processes and methods for the evaluation of the overall transportation system and related projects, multi-modalism and intermodal connectors will be emphasized. Efforts on the part of the Plan Commission staff will include solicitation of more active participation from modal representatives. Through the various committee structures, existing and proposed, the Plan Commission staff will coordinate intermodal concerns and requirements. An example would be the development of a design checklist covering the safe and efficient movement of public transit within private developments that would be distributed along with zoning requirements to developers. As this type of multi-modal focus becomes more predominant, the various committees will develop their own ideas and the Plan Commission staff will be in a position to coordinate among and between these groups.

Fiscal constraint is another focus stemming from ISTEA, TEA-21, and SAFETEA-LU. The purpose of this transportation plan is to provide a comprehensive long-range plan of transportation improvements for which adequate funding has been identified and conformity can be demonstrated. This is not a hopeful wish-list, but a practical list of projects/improvements that will provide for a better transportation system over time. It has been determined that making more efficient use of the existing facilities and right-of-ways is preferable to creating new facilities that parallel and replace the old. Some new connections and new facilities are needed to supplement and enhance, not to replace, the existing facilities. The financial resources for the projects/improvements were projected over 25 years and then the long range program was adapted to fit within those constraints.

FINANCIAL PLAN

The timing of available local, state and federal funding has to be coordinated with transportation improvement needs to have a viable financial plan. The use of federal transportation improvement funds depends on local funds being provided for a portion of project costs. The traditional local funding available for the match on federally subsidized projects and other necessary local transportation improvements come from: the Local Road and Street Accounts (LRS) for the various jurisdictions, the Delaware County Cumulative Bridge Fund (CUMBR), and Economic Development Income Tax (EDIT) for Muncie and Delaware County. The State also provides special funds to go toward local transportation improvements with no local match required. Motor Vehicle Highway (MVH) funds and a portion of the LRS funds go toward operation and maintenance costs for the local highway departments and a majority of local EDIT funds are used for a variety of non-transportation improvements for enhancing the local economies.

LPA / Fund	2015	2016	2017
Delaware LRS	564,818.92	506,321.61	617,290.66
County MVH	3,691,895.47	3,652,382.71	4,235,832.34
Wheel-tax	1,044,354.26	1,028,128.53	1,055,849.37
CUMBR	1,966,164.36	2,009,002.99	2,032,947.37
County Total	7,267,233.01	7,195,835.84	7,941,919.74
Muncie LRS	563,017.30	556,558.99	701,204.97
MVH	2,517,881.99	2,489,592.76	2,653,947.76
Wheel-tax	1,179,677.10	1,161,342.35	1,196,669.14
Muncie Total	4,260,576.39	4,207,494.10	4,551,821.87
Yorktown LRS	67,224.19	80,678.73	101,633.89
MVH	386,109.16	555,083.81	798,706.53
Wheel-Tax	170,591.38	190,685.43	173,204.63
Muncie Total	623,924.73	826,447.97	1,073,545.05
Selma LRS	7,596.69	7,742.93	9,753.63
MVH	31,282.64	30,930.59	32,793.30
Wheel-Tax	15,298.61	15,060.86	15,967.19
Selma Total	54,177.94	53,734.38	58,514.12

It should be noted that the local funds projected for transportation improvements are for all road improvement work including road maintenance and is not exclusively for matching federal funds on local federally subsidized projects. The use of these funds must be a balanced between maintaining and upgrading the road network. Also, a portion of the local transportation improvements use local funds exclusively for a variety of reasons. The improvements on roads that are not major roads on the federal Functional Class System are not eligible for federal transportation funds. Some improvements eligible for federal funds can be done at a much lower cost exclusively with local funds because federal standards and

procedures tend to result in higher project costs. Also, with traditional funding sources shrinking and improvement costs rising, non-traditional funding sources have been sought including: private funding primarily through non-for-profits, bonding, partnerships with other governmental agencies such as Ball State University and the Muncie Sanitary District, and Tax Increment Financing Districts.

Table 5: BASE YEAR AVERAGE REVENUES

FUNDS	CITY OF MUNCIE	DELAWARE COUNTY	YORKTOWN	SELMA
LRS	$ 606,925	$ 562,810	$ 83,180	$ 8,365
MVH	$ 2,553,810	$ 3,860,035	$ 579,965	$ 31,670
Wheel Tax	$ 1,179,230	$ 1,042,775	$ 178,160	$ 15,440
CUMBR		$ 2,002,705		
TOTAL	$ 4,339,965	$ 7,468,325	$ 841,305	$ 55,475

The base year revenues were derived by taking a three-year annual average rounded to the nearest five (5) from 2015 through 2017 for each funding source.

The table below shows the local transportation improvement funds as projected for the next 26 years. The revenues were estimated using the base year average for 2016 and applying per year growth factors of 2.0 % for LRS and MVH, 0.7 % for Wheel Tax, and 1.7 % for Cumulative Bridge Funds. The funds listed reflect a rough average of what is projected to be available to use for operations, road maintenance and Transportation projects.

Table 6: PROJECTED LOCAL TRANSPORTATION FUNDS

FUND SOURCE	2019-2024	2025-2029	2030-2034	2035-2039	2040-2044	26-YEAR TOTAL
City of Muncie Total	**28,511,311**	**26,024,282**	**28,296,235**	**30,789,157**	**33,525,494**	**$147,146,479**
LRS	4,062,895	3,774,655	4,167,524	4,601,283	5,080,188	21,686,544
MVH	17,095,788	15,882,935	17,536,044	19,361,210	21,376,340	91,252,316
Wheel Tax	7,352,629	6,366,692	6,592,668	6,826,664	7,068,966	34,207,619
Delaware County Total	**49,298,339**	**45,194,000**	**49,317,067**	**53,838,446**	**58,797,603**	**$256,445,455**
LRS	3,767,518	3,500,234	3,864,541	4,266,765	4,710,854	20,109,912
MVH	25,839,956	24,006,753	26,505,395	29,264,098	32,309,929	137,926,132
Wheel Tax	6,501,817	5,629,968	5,829,795	6,036,714	6,250,978	30,249,273
CUMBR	13,189,047	12,057,045	13,117,336	14,270,868	15,525,842	68,160,138

Table 6: PROJECTED LOCAL TRANSPORTATION FUNDS (Continued)

FUND SOURCE	2019-2024	2025-2029	2030-2034	2035-2039	2040-2044	26-YEAR TOTAL
Yorktn Total	**5,550,091**	**5,086,194**	**5,549,596**	**6,058,887**	**6,618,761**	**28,863,531**
LRS	556,826	517,322	571,165	630,613	696,248	2,972,174
MVH	3,882,418	3,606,982	3,982,400	4,396,891	4,854,523	20,723,213
Wheel Tax	1,110,847	961,890	996,031	1,031,384	1,067,991	5,168,143
Selma Total	**364,274**	**332,351**	**361,225**	**392,901**	**427,664**	**1,878,414**
LRS	55,997	52,025	57,439	63,418	70,018	298,897
MVH	212,006	196,966	217,466	240,100	265,090	1,131,627
Wheel Tax	96,270	83,361	86,320	89,383	92,556	447,890

The table below displays the projected federal Urban STP, STP-TA, HSIP and CMAQ funds available for major local road projects and Federal Transit Administration (FTA) Section 5307 funds available to the Muncie Indiana Transit System (MITS) from 2019 through 2044.

Table 7: PROJECTED FEDERAL TRANSPORTATION IMPROVEMENT FUNDS

FUND SOURCE	2019-2024	2025-2029	2030-2034	2035-2039	2040-2044	26-YEAR TOTAL
STP-Urban	10,302,730	8,585,610	8,585,610	8,585,610	8,585,610	44,645,170
STP-TA	804,100	670,085	670,085	670,085	670,085	3,484,440
HSIP	2,132,650	1,777,205	1,777,205	1,777,205	1,777,205	9,241,470
CMAQ	4,687,770	3,906,475	3,906,475	3,906,475	3,906,475	20,313,670
FTA Sect. 5307	12,259,860	10,216,550	10,216,550	10,216,550	10,216,550	53,126,060
Federal Total	30,187,110	25,155,925	25,155,925	25,155,925	25,155,925	130,810,810

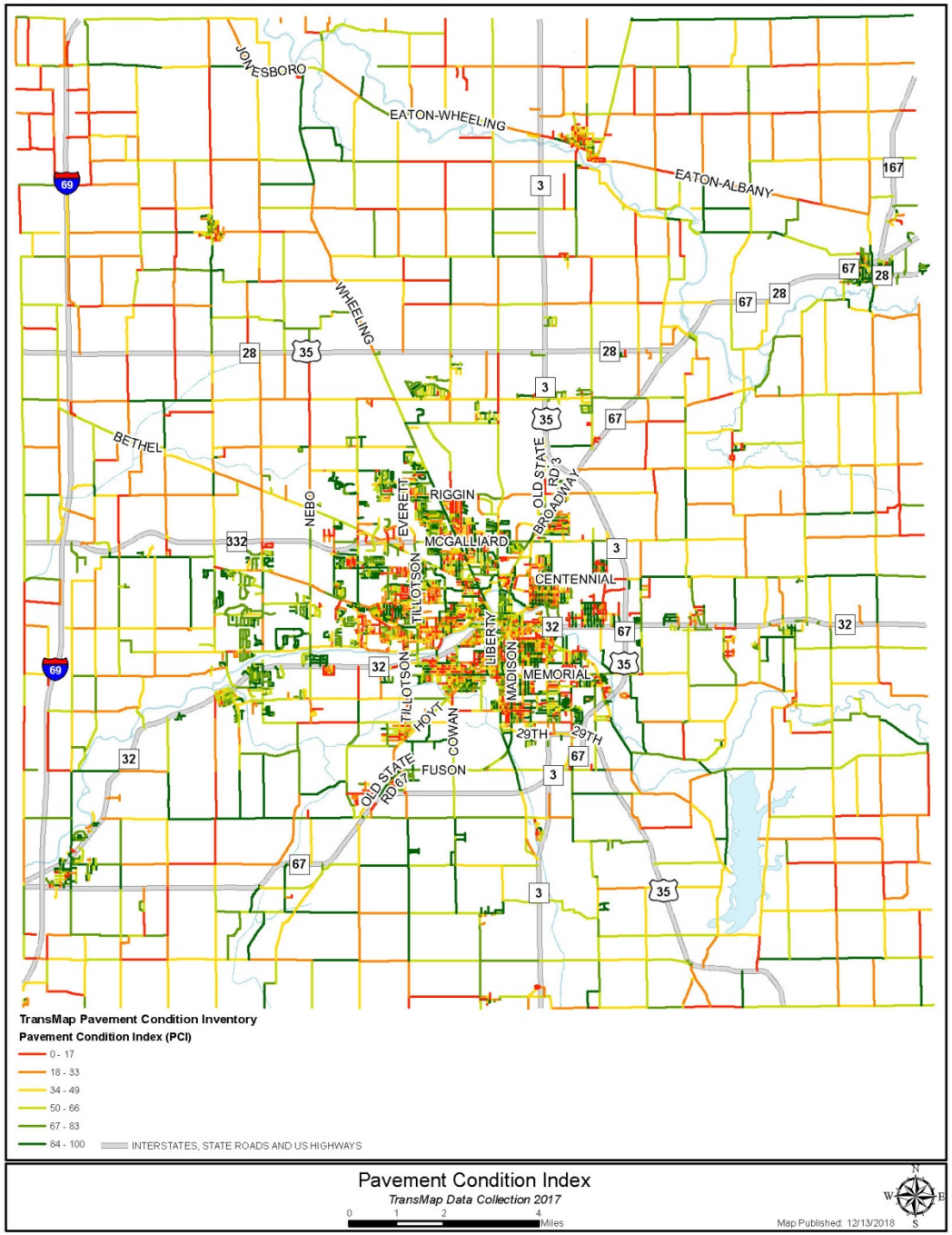
Abbreviations: STP-Urban is Surface Transportation Program funds allocated to the urbanized area.
TA is Transportation Alternative, HSIP is Safety, CMAQ is Congestion Mitigation Air Quality
FTA is Federal Transit Administration.

Pavement Management Systems

TransMap, pavement mapping consultant, has worked with the County, Muncie and Yorktown to rate the public road pavements throughout Delaware County in the process of developing pavement management plans. The purpose of the pavement management information is to give each jurisdiction the necessary information to plan for the best combinations of pavement improvements for making an efficient use of available funds toward local transportation improvements. The graphic to the right shows how pavements throughout Delaware County are currently rated.

Bridge Projects

The exact locations and timing of bridge projects is driven by the Bridge Reinspection Report, which is updated every two years using federal funds. The Bridge Reinspection Report specifies improvements needed for urban and rural bridges. Rural bridges are those located outside of the Urbanized Area and Urban bridges are inside. A distinction is made per the funding policies of the Indiana Department of Transportation (INDOT). Bridge projects compete on a statewide basis and the needed improvements far outweigh available Bridge funds. Additionally, Surface Transportation Program (STP) funds can be used for bridge projects while Bridge funds are solely for bridge structures and there is a federal mandate in the Transportation Bill that a certain percentage must be used on rural



bridges. As a result, INDOT's policy requires that if there are unused STP funds in an Urbanized Area, an urban bridge project must be funded through STP. The current practice for a county is to have 2 to 3 bridge projects in a construction program as it takes from 2-4 years to reach actual construction. There are currently four bridges in the "works": Bridge 125, Bridge 127, Bridge 502 and Bridge 161. Federal Bridge funds will continue to be sought for some rural bridges using the Bridge Reinspection Report as support in order to maintain an on-going improvement process. The remainder of the bridge improvements are anticipated to be covered by local bridge funding. There will be consideration for upgrading some bridges to allow more rural roads to handle heavy vehicles carrying grain or livestock to market.

Rail Crossing Projects

Rail crossings are also evaluated on a statewide basis by the Indiana Department of Transportation (INDOT). INDOT determines the rail crossings that are eligible for federal transportation improvement funds. Rail crossing projects will be included in the Delaware-Muncie Transportation Improvement Program (DMTIP) when the locations become eligible for federal funds provided that the local jurisdiction has determined the improvement needed and are committed to it.

It has been noted that rail crossing approach sight-distances are sometimes compromised by brush along fences outside of road and railroad right-of-ways. A local effort to maintain rail crossing sight-distance clearance will be set up for both public and private land areas near each crossing.

Safety Projects

A program of safety projects will be the focus in the future. The current safety effort centers on projects to update our local sign inventories and replacement signs that no longer meet FHWA's retro-reflectivity requirements. Other improvements will be driven by the annual examination of accidents and turning movement count data. It is anticipated that certain intersection improvements will result. Roughly $355,000 of HSIP (safety) federal funds will be available per year for the Muncie Urbanized Area.

Transportation Enhancement Projects

Projects using Transportation Enhancement (TE) federal funds from the Surface Transportation Program (STP) are approved by the Governor of Indiana after going through a selection process. Currently, TE funds were allocated to the Muncie urbanized area based on population, but have been replaced by Transportation Alternatives (TA) federal funds which are also eligible toward Safe Routes to School efforts. Almost $135,000 of TA federal funds will be available per year for the Muncie Urbanized Area.

The Comprehensive Plan identified key areas of emphasis which directly relate to the enhancement program and it is anticipated that future projects will be sought aimed at enhancing the appearance of our communities, developing a countywide bicycle and pedestrian network and increasing our quality of life. Section VI containing the Bicycle and Pedestrian Plan for Muncie and Delaware County will provide the planning support for these types of projects. TE funds could only be used for the following types of projects:

- Provision of facilities for pedestrians and bicycles.
- Acquisition of scenic easements and scenic or historic sites.
- Scenic or historic highway programs (including provision of tourist and welcome center facilities).
- Landscaping and other scenic beautification.
- Historic preservation.
- Rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals).
- Preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian or bike trails).
- Control and removal of outdoor advertising.
- Archaeological planning and research.
- Environmental mitigation to address water pollution due to highway runoff or reduce vehicle-caused wildlife mortality while maintaining habitat connectivity.
- Provision of safety and educational activities for pedestrians and bicyclists.
- Establishment of Transportation Museums.

The current focus is completion of the White River Greenway with a new emphasis on sidewalks – especially those creating a connection to the trail system.

Public Transit Needs

The Muncie Indiana Transit System (MITS) has been responsive in expanding and altering its fixed route system to reach new areas of growth within Muncie. The changes made to serve Woods Edge and the Meijer's Store are examples of this. Poor road configurations and a lack of sidewalks are major barriers to efficient transit service at new developments. The efforts to develop a pedestrian system that reaches throughout the urban area will help transit service by making bus stops more easily accessible to the public. It has been estimated that roughly half of the MITS Plus passengers could use the fixed route service in good weather if

adequate sidewalks were available. The fixed route service provides greater independence to its passengers and is less costly than demand responsive service. MITS started a new policy on the demand responsive service to serve all of incorporated Muncie, not just areas near the fixed route system. Local changes in ordinances as a result of the Comprehensive Plan effort will help to encourage development near existing services and municipal facilities. The concentration of growth near or within Muncie should provide better opportunities to expand the MITS transit services. MITS, like most transit services in the United States, provides for 1 to 2 percent of urban trips. Increased transit service would decrease traffic congestion and enhance traffic safety.

Long-range transit projects will continue to maintain, and expand as needed, the operation of the urban public transit system; will expand the rural transit system as needed using the New Interurban; and will remain open to other public transit opportunities such as light rail. It is anticipated that Delaware County will join the Central Indiana Regional Transportation Authority (CIRTA) as planning continues toward connection with Indianapolis and the surrounding counties. Future projects will also be driven by the Public Transit-Human Services Coordination Plan.

Intelligent Transportation Systems (ITS)

Being a small urban area, ITS efforts focus on technological advances that serve to optimize efficient traffic movement, use of traffic enforcement personnel and data gathering rather than incident management to reduce congestion delays and similar issues facing larger areas.

Two areas under development provide a foundation for ITS applications and solutions: the signal modernization project and the countywide GIS (geographic information system). An on-going program for identifying and implementing such improvements will be instituted and should significantly benefit other areas mentioned previously such as the analysis of signs and signals. All efforts are being made to ensure that local ITS applications are coordinated to prevent redundancy.

Congestion Mitigation & Air Quality (CMAQ) Funds

A continuing category of funding is available to the Delaware County area as a result of having once been designated non-attainment for National Ambient Air Quality Standards. This category of funds is actually separated out from the Surface Transportation Program Funds and must be used only for eligible projects – ones that will have a positive impact on air quality and not increase vehicle emissions. There is a consulting committee that oversees the requested projects to determine their eligibility. Once that is confirmed by the Federal Highway Administration, the projects can be programmed for the use of CMAQ funds. Roughly $780,000 per year is available toward CMAQ projects within the Delaware County portion of the Muncie Metropolitan Planning Area. Types of projects funded through CMAQ include Ozone education, bicycle and pedestrian facilities, and transit. It could also include new concepts such is an Idle-Air equipped truck stops since idling vehicles have higher emissions. It is anticipated that, since bicycle and

pedestrian facilities are in demand and TE funds have be focused on trails, CMAQ projects will focus on pedestrian facilities with special attention to sidewalks providing access to the transit system. Funds to date have been used toward alternative fuel vehicles, the trail system, new sidewalks, and roundabouts.

LONG RANGE PROJECTS

The long range program of projects is shown on the following pages. Previously they have included only those projects within the Metropolitan Planning Area, but this listing has been expanded to include all federally funded projects and all regionally significant projects located in Delaware County, Indiana, to comply with Transportation Conformity requirements. As a result, the list includes State projects both inside and outside of the Metropolitan Planning Area, projects listed in the Madison County Council of Governments Transportation Plan located in the Daleville area which is a part of the Anderson Urbanized Area, and rural local projects outside the Metropolitan Planning Area. The listing does not include the bicycle and pedestrian projects which are shown in Section VI. The listing was separated by jurisdiction and by funding phase. There were five funding phases: 2019-2024, 2025-2029, 2030-2034, 2035-2039 and 2040-2044. The listing also included a label for Project Class which refers to whether it was considered an expansion project or an exempt project. Expansion projects were those that expanded capacity and were subject to a conformity analysis to determine that they would not adversely impact air quality. This list of projects had that determination when the conformity analysis was required, but this requirement ended July 20, 2013. Bicycle and pedestrian projects were classified as exempt.

The listing includes a column labeled Model Year. The DMMPC was required to conduct an air quality analysis for certain years and those selected had to meet certain requirements such as they must be no more than 10 years apart. The model years that we have are 2010, 2015, 2020, 2025, 2030, 2035, 2040 and 2045. The model year of a project meant the year in which that improvement was to be added to the system and modeled for air quality conformity. The project would be added to the model year only if it was to be completed and open to traffic by the “ozone season” which is April through October. The requirement for an emissions analysis involving Transportation Plan and Transportation Improvement Program projects effective February 16, 2019.

Table 8: *Transportation Plan Projects by Jurisdiction, Project Class and Funding Phase*

Jurisdiction **City of Muncie**

Project Class

Funding Phase	*Project Name*	*Des #*	*Miles*	*Type of Expansion Project*	*Type of Exempt Project*	*Model Year*	*Project Cost*	*Federal Cost*	*Local Cost*	*Federal Funding*
2019-2024	Kitselman Bike/Ped Trail				Bike/Pedestrian Facilities	2025	$6,000,000	$4,800,000	$1,200,000	TA/STP
2019-2024	Wheeling Reconstruction	1173229	0.75		Reconstruction/Turn Lanes	2025	$3,300,000	$2,640,000	$660,000	Urban STP
2019-2024	Arts & Cultural Trail	1700751			Bicycle/Pedestrian Paths	2025	$2,400,000	$1,920,000	$480,000	Urban STP
2025-2029	Riggin Reconstruction	1700752	1.40		Reconstruction/Turn Lanes	2030	$3,000,000	$2,400,000	$600,000	Urban STP
2025-2029	Centennial Reconstruction		0.77		Reconstruction/Turn Lanes	2030	$2,200,000	$1,760,000	$440,000	Urban STP
2025-2029	Riverside Reconstruction		0.60		3-R Reconstruction	2030	$1,500,000	$1,200,000	$300,000	Urban STP
2030-2034	Walnut Reconstruction		0.75		Reconstruction/Turn Lanes	2030	$2,100,000	$1,680,000	$420,000	Urban STP
2030-2034	Bethel from Oakwood to New York		0.00		Reconstruction/Turn Lanes	2035	$3,000,000	$2,400,000	$600,000	STP/CMAQ
2030-2034	Morrison Reconstruction		0.90		Reconstruction/Turn Lanes	2035	$2,000,000	$1,600,000	$400,000	Urban STP L

Jurisdiction **Delaware County**

Project Class Exempt

Funding Phase	*Project Name*	*Des #*	*Miles*	*Type of Expansion Project*	*Type of Exempt Project*	*Model Year*	*Project Cost*	*Federal Cost*	*Local Cost*	*Federal Funding*
2019-2024	Br#161 CR 170 S over White River	9680560	0.00		Bridge Replacement	2025	$2,900,000	$2,320,000	$877,300	BRZ
2019-2024	Br#125 Nebo Rd over York Prairie	1700680	0.00		Bridge Replacement	2025	$2,040,000	$1,632,000	$408,000	STP-Urban
2019-2024	Br#127 CR 600 W over York Prairie	1700681	0.00		Bridge Replacement	2025	$1,237,500	$ 990,000	$247,500	STP-Urban
2019-2024	Br#502 Gharkey St over Buck Creek	1700682	0.00		Bridge Replacement	2025	$ 506,250	$ 405,000	$101,250	STP-Urban

Jurisdiction **Yorktown**

Project Class

Funding Phase	*Project Name*	*Des #*	*Miles*	*Type of Expansion Project*	*Type of Exempt Project*	*Model Year*	*Project Cost*	*Federal Cost*	*Local Cost*	*Federal Funding*
2019-2024	River Rd at Nebo Roundabout	1700678			Roundabout	2025	$1,900,000	$1,520,000	$ 380,000	STP/EDIT
2019-2024	Nebo Sidewalk	1592998, 1702868	0.55		New Sidewalks	2025	$1,325,000	$1,060,000	$ 265,000	CMAQ
2030-2034	CR 600W: SR 32 to SR 67		1.00		Reconstruction/Realignment	2035	$6,000,000	$3,500,000	$2,500,000	STP/Earmark

Abbreviations: Urban STP = Urban Surface Transportation Program, CMAQ = Congestion Mitigation & Air Quality, TA = Transportation Alternatives

2025-2045 Improvement Projects for All Jurisdictions:
Pavement reconstruction or resurface improvements will be based on the Pavement Management Plans for the County, Muncie, and Yorktown.
Bridges will be replaced or rehabilitated based on the Delaware County Bridge Inspection reports.
Bicycle/pedestrian facility constructions and improvements will be based on the Delaware-Muncie Bicycle and Pedestrian Plan.

Jurisdiction **State**

Project Class

Funding Phase	*Project Name*	*Des #*	*Miles*	*Type of Expansion Project*	*Type of Exempt Project*	*Model Year*	*Project Cost*	*Federal Cost*	*State Cost*	*Federal Funding*
2019-2024	SR 332 at CR 600W	1298228			Added Turn Lanes	2025	$1,655,500	$1,324,400	$331,100	STP
2019-2024	SR 28 BR (525W)	1400043			Replace Bridge Deck	2025	925,000	740,000	185,000	NHPP
2019-2024	Us 35 at Bypass	1500037	1.05		CRC Pavement	2025	1,698,000	1,358,400	339,600	STP
2019-2024	SR 167 from SR 67 to north	1593191	4.24		HMA Overlay Paving	2025	1,775,000	1,420,000	355,000	STP
2019-2024	SR 32 from SR 9 to US 35	1593199	15.1		HMA Overlay Paving	2025	2,826,400	2,261,120	565,280	STP
2019-2024	SR 28/67 from SR 28 to .79 mile E	1600783	0.79		Road Reconstruction/Bridge	2025	16,484,500	13,187,600	3,296,900	STP
2019-2024	SR 28 from SR 3 to SR 67	1600792	2.71		HMA Overlay Paving	2025	2,049,140	1,639,300	409,830	STP
2019-2024	SR 332 BR 1.39 mi. E of I-69	1601927			Bridge Rehab: pipe lining	2025	457,930	366,344	91,586	STP
2019-2024	I-69 NB BR 3.95 mi. N of SR 28	1602210			Bridge Rehab: pipe lining	2025	2,939,470	2,645,523	293,947	NHPP
2019-2024	SR 332 over I-69 NB/SB	1602238			Bridge Deck Overlay	2025	2,289,715	1,831,772	457,943	NHPP
2019-2024	SR 67 from SR 3 to SR 28-600N	1700810			HMA Overlay Paving	2025	1,118,685	894,948	223,737	STP
2019-2024	Various BR work on Highways	1700960			Bridge Work	2025	10,850,000	8,680,000	2,170,000	STP
2019-2024	SR 3 BR, 6.54 mi. N of US 36	1702897			Small structure Pipe Lining	2025	560,678	448,542	112,136	NHPP
2019-2024	US 35 at CR 300S	1702942			Added Turn Lanes	2025	390,000	312,000	76,000	NHPP
2019-2024	US 35 at McGalliard Road	1702982			Intersection & Bridge work	2025	483,768	387,014	96,754	NHPP
2019-2024	SR 28 over Halfway BR	1800334			Bridge Thin Deck Overlay	2025	116,545	93,236	23,309	STP
2019-2024	I-69 2.1 mi. S of SR 109 to 1300N	1800685			Traffic Management Systems	2025	2,175,000	957,500	377,500	NHPP
2019-2024	SR 28 BR 0.75 mi. E of I-69	1801072			Bridge maintenance & Repair	2025	175,145	140,116	35,029	STP
2019-2024	US 35 Various Locations	1801453			Safety Signage	2025	77,098	69,388	7,710	HSIP
2019-2024	SR 3/ SR 67/ US35 Locations	1801461			Safety Barrier Walls	2025	652,787	587,508	65,279	HSIP
2019-2024	US 35 from Muncie to Richmond	1802056			Curve Warning Signs	2025	74,000	59,200	14,800	STP
2019-2024	SR 32 from Daleville to Yorktown	1802057			Curve Warning Signs	2025	23,000	18,400	8,600	STP
2019-2024	US 35-Bypass at Riggin-300N	1802059			Convert to Right-in/Right-out	2025	55,000	44,000	11,000	NHPP

Abbreviations: STP = Surface Transportation Program, NHPP = National Highway Program, HSIP – Safety Program

2025-2045 Improvement Projects: programmed projects will be based on Bridge, Preventative Maintenance, Safety, and National Highway Programs

Fiscal Responsibility:

This Transportation Plan and the program of projects reflect fiscal responsibility based upon best estimates of anticipated funding. The projects costs reflect the best estimates based on year of construction costs using an annual inflation factor of 3.5%.

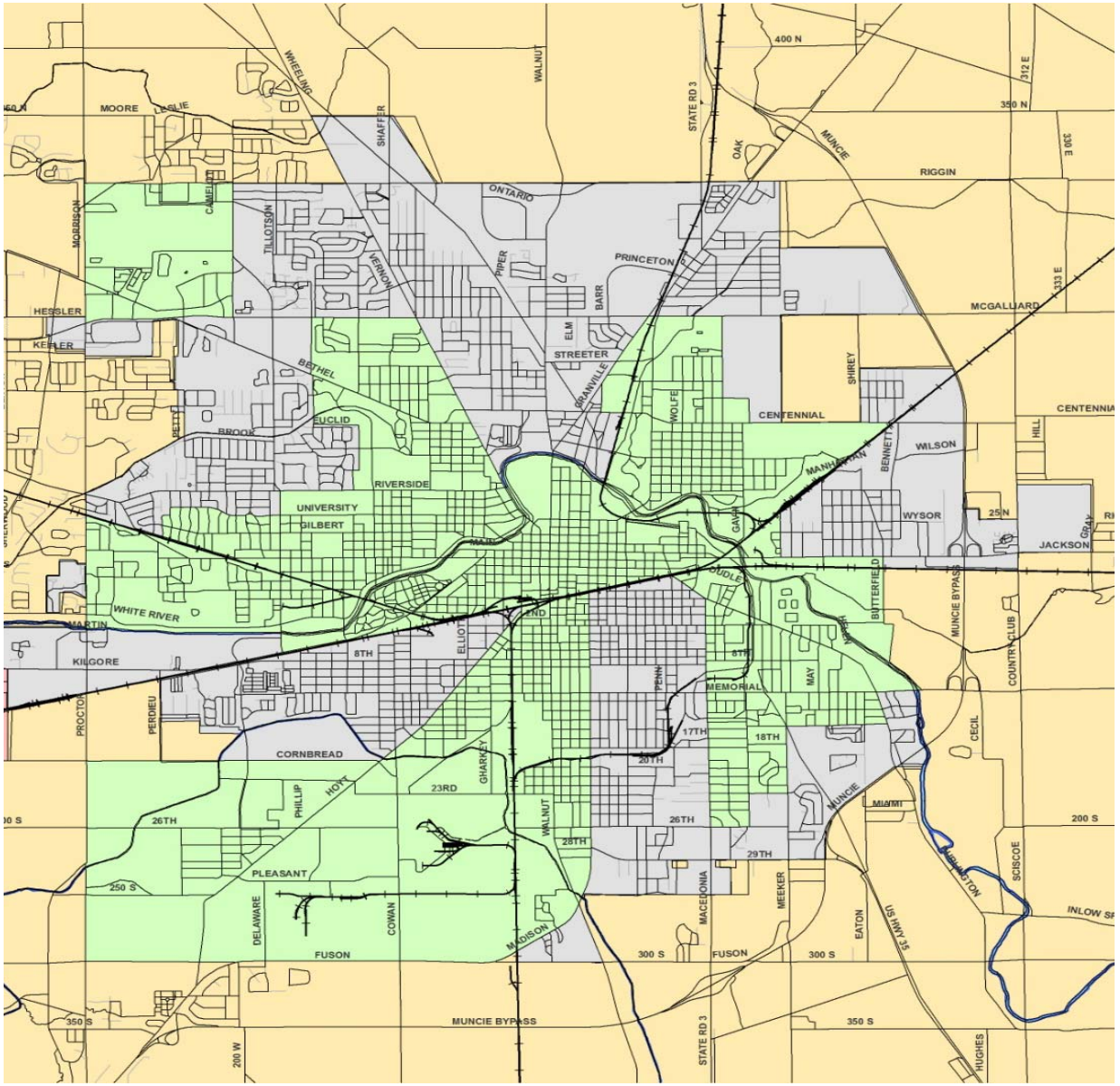
SECTION VIII

Environmental Justice Analysis of Local Projects in Transportation Plan

This section of the summary chapter provides environmental justice analysis concerning the program of local projects in the Muncie Urbanized Area and concerning low-income and minority areas. The two analyses of these areas are separate.

2010 Census Low-Income Areas Shown in Green#

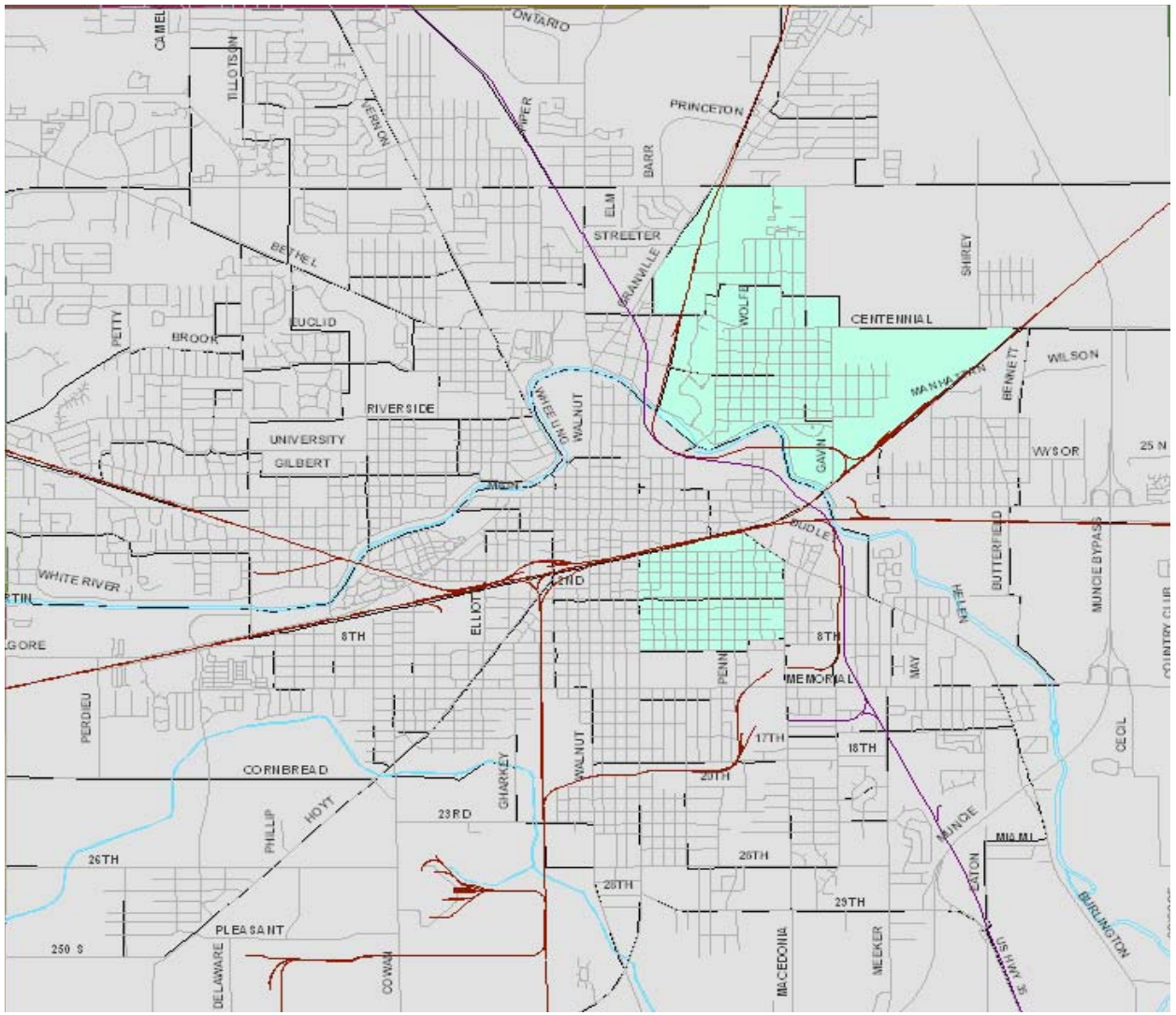
The census tract data for all of Delaware County was analyzed and the low-income areas highlighted in green on this map are the 2010 Census Tracts with at least 30 percent of the individuals living below the poverty level in 2009. The 2010 Census indicates that 22,465 people or 19.1 percent of Delaware County's population lived below the poverty level. The low-income areas north of White River and west of Wheeling Avenue contained university students who qualified by their individual income level. The Wheeling Avenue reconstruction will benefit this area with better bike/pedestrian facilities as well as



a better arterial for all of Muncie.

Environmental Justice Analysis of Minority Areas

The Minority Areas, as shown on the map below, are the 2010 Census Tracts with over half of the population as minorities. The population of 2010 Census Minority Areas totaled 4,136 people, or 5.9 percent of the City of Muncie population of 70,085. The minority areas (highlighted in light green) are comprised of the Whiteley Neighborhood in the northeast and the Industry Neighborhood south of the downtown.
2010 Census Minority Areas Shown in Green



There is a federal-aid project planned within the minority areas. The Kitselman Gateway projects abut and connect into a minority area, providing their residents with access to new bicycle/pedestrian facilities east of the downtown.

This program of projects will benefit both the minority and the low-income areas.

SECTION IX

PUBLIC INPUT

Letters were sent to solicit input toward the 2018-2045 Transportation Plan as follows:

REQUEST FOR PUBLIC INPUT & REQUEST FOR PUBLIC INPUT

PLEASE TAKE NOTICE that the Delaware-Muncie Metropolitan Plan Commission (DMMPC) is requesting public input on the matter of the 2018-2045 Delaware-Muncie Transportation Plan Update for Delaware County and the Muncie Metropolitan Planning Area from citizens, affected public agencies and jurisdictions, employee representatives of transportation and other affected agencies, private providers of transportation and other interested parties. The Transportation Plan covers all of Delaware County for Air Quality Conformity purposes while the Muncie MPA excludes the Daleville area (Anderson MPA) and includes the Parker City area. The Transportation Plan Update will be presented at a public meeting on Wednesday, December 5, 2018 at 4-5 pm in the Commissioner's Court Room on the 3rd Floor of the Delaware County Building at 100 W. Main Street, Muncie, Indiana.

Public comment may be forwarded to the Plan Commission Office through December 18, 2018 for the 2018-2045 Transportation Plan Update (DMMPC FAX number: 765-747-7744). The Technical Advisory Committee will meet on December 13th, at 11:00 am in the Plan Commision Office, Room 206 of the Delaware County Building, at 100 W. Main Street, Muncie, Indiana to discuss the Transportation Plan Update. The Transportation Policy Committee will meet on December 19th, at 1:30 pm, in the Muncie Mayor's Office at City Hall to review the Transportation Plan Update and will take action on the document during that meeting.

Specific information on the Transportation Plan Update document will be available at the Plan Commission Office, Delaware County Building, Room 206, 100 West Main Street, Muncie, Indiana, 8:30 a.m. to 4:30 p.m., Monday through Friday, 765-747-7740. The draft Transportation Plan will be placed on the Plan Commission page of the county website www.co.delaware.in.us and comments may be e-mailed to hsmith@co.delaware.in.us .

Marta Moody
Executive Director

Hugh Smith
Principal Planner

A public meeting to solicit public input was set for Wednesday, December 5, 2018 and notice was placed in The Star Press more than 10 days before the meeting as follows:

NOTICE OF PUBLIC MEETING & REQUEST FOR PUBLIC INPUT

PLEASE TAKE NOTICE that on December 5th, the Delaware-Muncie Metropolitan Plan Commission (DMMPC) will hold a public meeting on the matter of the 2018-2045 Delaware Muncie Transportation Plan (DMTP) affecting transportation in the Muncie Metropolitan Planning Area.

The public meeting will take place on the above date at 4:00 p.m. to 5:00 p.m. in the Commissioner's Conference Room, 2nd Floor, Delaware County Building, Room 200A, 100 W. Main Street, Muncie, Indiana. Input is requested from citizens, affected public agencies and jurisdictions, employee representatives of transportation and other affected agencies, private providers of transportation and any other interested parties. The 2018-2045 DMTP document is on file for public inspection at the Plan Commission Office, Delaware County Building, Room 206, 100 West Main Street, Muncie, Indiana, from 8:30 a.m. to 4:00 p.m., Monday through Friday (phone: 765-747-7740). The draft DMTP document will be on Plan Commission website at www.dmmpc.org. Written comments may be filed with the Plan Commission Office or emailed to hsmith@co.delaware.in.us through December 18, 2018 for the 2018-2045 DMTP.

The Transportation Plan sets out a twenty-year listing of transportation improvements needed and the federal and local funding available to handle the maintenance and improvement of transportation facilities.

The Transportation Policy Committee (TPC) will take final action to approve, modify all, or a part of, said DMTP at its meeting on December 19, 2018. The final 2018-2045 Delaware Muncie Transportation Plan will then be forwarded to the Indiana Department of Transportation (INDOT) for processing.

Marta Moody, MPO Director

DMMPC

Transportation Plan Public Meeting 12/5/2018 – Public Comments

The stoplight at Liberty and Memorial is often ignored by Memorial Drive drivers.

Walnut Street at the Railroad tracks south of the downtown has a ped/bike crossing that is very unsafe. Railroad crossing closings have forced walkers and bikers (as well as drivers) to use Walnut to cross railroads.

Pedestrian infrastructure is need across McGalliard Road at popular areas west of Tillotson and also near Muncie Mall in the northeast.

The signal for Wheeling at Centennial has a long green period for Centennial, but too little green time for Wheeling traffic, causing traffic to back up during the afternoon peak.

Better timing is needed for the SR 32 pair of streets to allow traffic to progress smoothly through the downtown.

A greenway loop is needed to connect Selma to Prairie Creek Reservoir and connect into the existing park trails that are connected to the Cardinal Greenway bike/pedestrian trail.

Selma needs to be connected to Muncie by bus and/or bike/ped path or sidewalks along SR 32.

The CR 600W jog needs to be straightened so CR 600W meets CR 400S at one, not two, intersections.

A sidewalk is needed along McGalliard Road to connect Muncie with the BMV; The BMV needs a bus stop.

Consider replacing the Wheeling at CR 500N signal with a roundabout.

There are sight-distance problems for drivers turning right at the southwest corner of McGalliard at Oakwood.

Note: These comments were made available to the various jurisdictions and will be considered in future discussions at the Technical Advisory Committee and the Transportation Policy Committee.

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December 6, 2018 Public Meeting Sign-in