VOLUME 4: FOUNDATION

Technical Analysis Memo | Wabash County Comprehensive Plan

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The following report provides an analysis across three topics: transportation, hazard mitigation, and public facilities and services. This report and its accompanying summary presentations are a summary of the baseline conditions and trends in support of the Wabash County Comprehensive Plan. For questions on this report please contact the project manager for Imagine One 85, Kyle May, senior planner with planning NEXT, at kyle@planning-next.com.

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1. TRANSPORTATION

Considering transportation, our focus is two-fold. First, assess the community's current and future multimodal transportation needs and opportunities from a high level. Second, consider how these needs and opportunities may affect population growth and decline.

KEY FINDINGS

- **Streets and Highways**
  Traffic Congestion — Most streets are not congested and have plenty of capacity for growth. Some sections of SR-15 and SR-13 in the City of Wabash are nearing capacity and may experience peak hour congestion.
  Bridge and Pavement Maintenance Backlogs — Pavement and bridge deferred maintenance backlogs are sizable and is the primary focus of County and local street superintendents.
- **Transit**
  Inadequate operations funding is affecting staffing levels and, as a result the ability to accommodate all service requests at Wabash Transit. For some, the agency's services are their only means to live independently and without it, may need to move out of the area.
- **General Aviation**
  Wabash Municipal Airport's main runway is 600 feet short of the minimum needed to insure hangered jets at the airport. Extending the runway makes the airport and county more attractive to large business owners want to fly into town when visiting their places of operation.
- **Walking and Biking**
  While most neighborhood and downtown streets are walkable and bikeable, other busy thoroughfares are not and may discourage walking and biking. Shared-use paths in Wabash provide a recreational amenity for those who travel to them. These quality-of-life amenities are important to those considering whether to move to the area.
- **Placemaking**
  Both Wabash and North Manchester have attractive downtowns with a strong sense of place. Beyond these places, a number of corridors lack needed infrastructure and visual enhancements to be recognized as authentic, desirable places.

Streets and Highways

Generally speaking, most streets and highways in Wabash County are not congested and can easily accommodate business and population growth. The primary concern of street superintendents is addressing deferred maintenance for bridges and pavement.

TRAFFIC CONGESTION

Traffic congestion is generally not seen as an issue in the County and its communities. Population decline and a reduction in business activity are likely reasons, as well as a growing national trend for motorists to trip-chain—completing multiple errands in one trip, or on the way to or from work and other destinations. As such, most streets have lower volumes today than they did 20 years or more ago.

A planning-level, corridor quality level of service (QLOS) analysis was performed to evaluate traffic congestion. The most recently available traffic volume dataset from Indiana LTAP was compared against street characteristics using the QLOS methodology. This method assigns a Level of Service (LOS) letter

designation to represent degrees of congestion during a specific time period, typically the peak hour. QLOS designations range from "LOS C or Better"—free flow to stable flows at or near the speed limit, to "LOS F"—bumper to bumper very slow-moving traffic.

The analysis findings, illustrated in **Map 4.1 Corridor Traffic**, show three generalized sections of highways in and around the City of Wabash may experience congestion, particularly during peak hours. Sections of SR-15 between Market Street and Niccum Road, and SRs-13/15 between Southwood Drive and Canal Street may, at times, may operate at LOS E or F during peak hours. Sections of SR-13 between SR-124 and Southwood Drive, and between Canal Street and Pries Road may operate at LOS D at times.

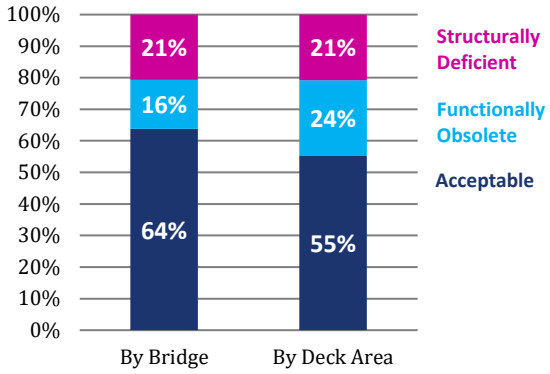
BRIDGE AND PAVEMENT MAINTENANCE BACKLOGS

A common theme expressed by street superintendents was the challenge of keep local system[1] bridges and road pavements maintained. To look at this issue more closely, Indiana LTAP asset management data was obtained for local bridges—maintained by the County[2], as well as local roads by maintaining authority—Wabash County, the City of Wabash, and for the Towns of North Manchester and LaFontaine.

Bridges

Bridge condition ratings were reported by bridge, as well as a weighted average considering the size of a bridge's deck area. The findings, shown in Chart 3.1 show about a fifth of all bridges are *structurally deficient*[3] and about a quarter of bridges by deck area are *functionally obsolete*[4]. While passenger car traffic is usually allowed on structurally deficient and functionally obsolete bridges, large loads and oversized vehicles may not be, complicating efforts to truck crops and move large farm implements.

Chart 4.1
Bridges by Condition Rating



At present, the bridge maintenance backlog is estimated to be approximately $34M. This estimate is based on INDOT planning-level cost estimates to maintain and/or rehabilitate structures, applied to the County's portfolio of bridges, plus a 20 percent contingency to cover unforeseen additional costs. **Map 4.2 Bridge Conditions** shows the County's bridges, symbolized by their condition rating.

Pavement

Pavement condition summary data was also evaluated for area jurisdictions, including the , the City of Wabash , the Towns of North Manchester and LaFontaine, and Wabash County—which maintains county and town roads outside of those jurisdictions. LTAP pavement condition data is broken out by pavement surface type and condition. Estimated costs are based on INDOT's planning-level costs for recommended treatments

[1] INDOT owns and maintains all roads and bridges on state routes and US highways.
[2] All local bridges, including those within municipalities, are owned and maintained by the County.
[3] Per INDOT, structurally deficient bridges are those with a deck, superstructure, or substructure component with found during the last inspection to have a feature-specific FHWA sufficiency rating of 4 or less. Structurally deficient bridges may also have weight restrictions put in place.
[4] Per INDOT, Functionally obsolete bridges are those too small to accommodate vehicle size and speed standards, generally due to width or clearance height restrictions.

based on a roads condition rating, plus a 20 percent contingency. Charts 3.2 through 3.5 show the condition ratings for each jurisdiction by surface pavement type.

Pavement rehabilitation maintenance backlogs for these agencies include Wabash County at $146M, the City of Wabash at $4.5M, the Town of North Manchester at $1.2M, and the Town of LaFontaine $1.2M.

Chart 4.2 – Pavement Condition, Wabash County

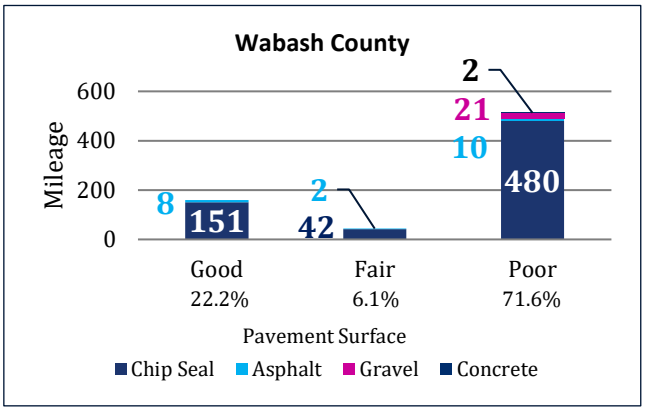


Chart 4.3 – Pavement Condition, City of Wabash

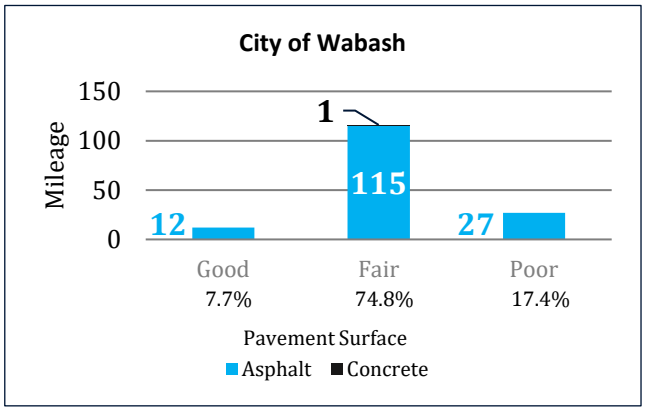


Chart 4.4 – Pavement Condition, North Manchester

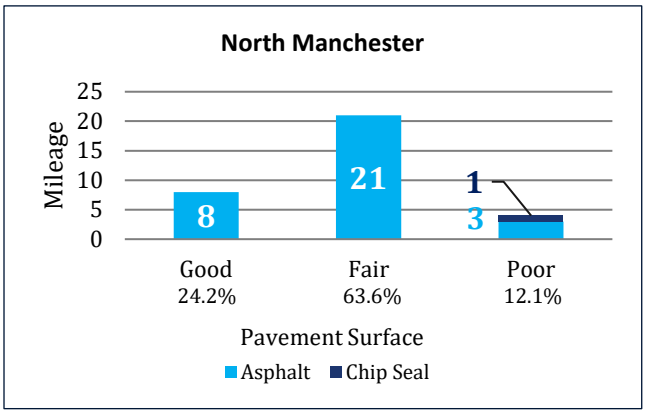
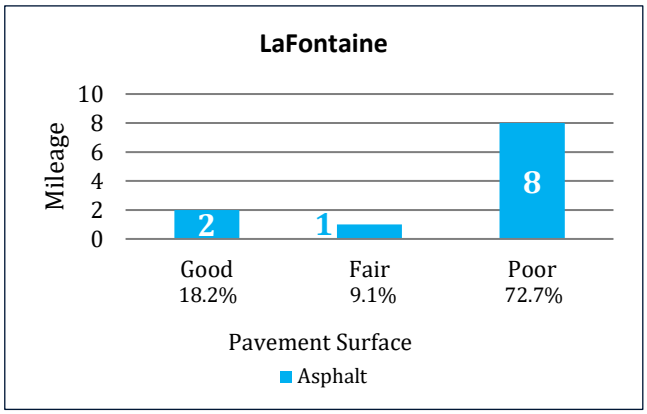


Chart 4.5 – Pavement Condition, LaFontaine



These are substantial liabilities and reflect the high cost of rehabilitating or even fully reconstructing poor condition roads. INDOT estimates the costs of these efforts range from $101,000 to $280,000 per lane-mile with an estimated service life of approximately 20 years.

While these backlogs are large, passage of the state's gas tax increase in 2018 is generating more funds to help local governments with their road and bridge maintenance. While the State Legislature's intent was to generate funds sufficient to address such backlogs, it is unclear whether future allocated funds will be enough to address the needs in Wabash County and its communities.

PLANNED ROADWAY IMPROVEMENTS

INDOT officials have several projects planned in the County. Near-term improvements include signal improvements in downtown Wabash in 2021 and a new signal at SR-15 and Wedcor Avenue in 2021. Looking further out, INDOT has programmed an intersection improvement at N Wabash Street and US-24 for construction in 2025, but the details of what this improvement will be have not yet been finalized.

Transit

Wabash Transit is a FTA 5311 rural public transit agency which operates as a division of Living Well in Wabash County, the area's Council on Aging. The transit agency primarily offers demand-response service—where those requesting a ride generally must schedule it in advance. The agency has operated a fixed-route service between Wabash and North Manchester, a route the agency hopes to resume post-COVID.

Data from the 2019 Indiana Public Transit Annual Report shows the agency had approximately 24,000 boardings in 2019, down from a five-year high of 31,000 in 2016. The agency operated 11 vehicles and had 15 part-time and one full-time employee. The agency's $560,000 annual budget is supported by federal, state, and local sources, as well as a small amount of fare revenue—typical for rural transit agencies.

Not captured by usage and financial information, Director Bev Ferry says Wabash Transit provides an essential service for those who often have no other choice. This includes those who cannot drive, as well as those who do not own a vehicle. The agency's services are necessary for some, particularly seniors, who may no longer be able to drive, yet are still aging in place. This service provides a measure of independence, allowing trips to the grocery, doctor offices, and other destinations. Without this service, Ferry suspects many older residents may need to move out of the area as they would have no other option. Beyond seniors, most riders are those who do not own a car. These include college students needing a ride to get groceries or supplies; those starting their first job—before they arrange to carpool or save up enough to buy a car; and the destitute, needing rides to social services, the foodbank, etc. For this last group, fares for trips to receive social services are generally paid for by private donations and/or social service agencies.

The most critical issue before the transit agency is its difficulty in attracting and retaining dependable and qualified drivers and support staff, particularly those with computer skills. Wage disparity is part of the issue. The agency can only afford to pay about $8 per hour, and most all positions are part-time. Similarly, the agency cannot afford to offer benefits. To the Director's knowledge, the only 5311 agencies which offer benefits are those which are a division of city or county government. Wabash-area governments have tried to help, having gifted several vehicles over the years. While appreciated, it is more beneficial under Federal Transit Agency funding rules to accept equivalent monetary contributions.

Air Travel

Wabash Municipal Airport, also known as Lynch Field, is the primary general aviation airport in the county. While owned by the City, Northern Indiana Aviation, LLC serves as the airports Fixed Base Operator (FBO) and is responsible for day-to-day operations. The airport has two runways, 18-36 at approximately 1,500 feet, and 9-27, which is 4,401 feet long. There are a few hangers for storage, an outdoor area to tie down aircraft, and fuel for sale.

The top challenge for the airport is an insurance regulation—jet owners cannot obtain insurance to cover hangered jets at airports without a runway that is at least 5,001 feet in length. This is an economic development issue as some business owners prefer to locate operations in places where they can fly into town to visit their operations. The closest general aviation airports with runways longer than 5,000 feet are in Huntington (18 miles east), Marion (19.5 miles south-southeast), Kokomo (21.5 miles southwest), Rochester (Fulton County, 28 miles northwest), and Warsaw (35 miles north).

There have been discussions about extending the runway to the west, across S 100 W. If extended, the edge of the runway would be just 125 feet from the closest residential structure along this road, and the homeowners have said they are interested in moving. An extension to the east may also be possible, but could require a portion of S Bailey Road to be closed to traffic.

Walking and Biking

Walking and biking conditions substantially vary around the county. For those who live on rural roads, their high posted speed limits can make it hard to safely share the road with motorists. Aside from those who like to bike on rural roads, conditions are poor for children and many others to walk or bike for recreation on these roads. When considering walking or biking for transportation, the sheer distance between most homes and like destinations—parks, schools, grocery stores—make walking or biking for transportation impractical.

By contrast, conditions in Wabash, North Manchester, and most rural communities are substantially better. Most residential streets have low traffic volumes and vehicle speeds. Many of these streets are nice places to walk or ride one's bike—even when sidewalks are missing or not complete. Beyond walking or biking for recreation in one's neighborhood, the compact and connected development pattern of Wabash and North Manchester in particular make it easy to walk or bike to downtown, city parks and, in some cases, one's primary and secondary schools.

Beyond these general conditions, facilities such as shared-use paths and barriers such as busy roads, railroads, streams, and highways were mapped. These are presented in **Map 4.3 Walking and Biking**.

In Wabash, the Wabash River Trail provides a nice place to walk or bike and parking lots at several of the connected parks allow for those who live further away to drive to the trail, park, and enjoy the amenity. More paths are in the planning stage. In terms of barriers, the most prominent include:

- SR-15, from Harrison Avenue to Wedcor Avenue, a busy stretch of road lacking sidewalks, in an area where low wage employers and apartments are prevalent.
- SR-15/13 from Miami Street (north of Wabash River) to Southwood Drive (SR-13), a busy highway with no sidewalk.

In North Manchester, only one path was located on Blickenstaff Road, between SR-13 and the Timbercrest Senior Living Center—though this does not appear to be an idyllic environment for recreation. Other paths are planned along the Eel River, similar to Wabash's river trail. In terms of barriers, the most substantial include:

- SR-114 between SR-13 and Wabash Road/Railroad tracks, a commercial corridor lacking sidewalks.
- Adequate connection (e.g. sidewalk) between Manchester Elementary School and the rest of North Manchester, northwest of the Eel River.

In terms of longer distance recreational trail facilities, Wabash County does not have a long-distance rail trail or shared-use path corridor. Nearby facilities include the Nickel Plate Trail which connects Kokomo, Peru, and Rochester, and the Sweetser Switch Trail between Converse, Marion, and Jonesboro. There have been some comments made requesting such a facility between Wabash and North Manchester, allowing for better connectivity between the two towns. From downtown to downtown, the distance is approximately 15-½ miles.

Placemaking

A key aspect to placemaking is maximizing the right-of-way to establish authentic, people-oriented places where one wants to live, work, play, and learn.

By far, the strongest examples include downtown Wabash and North Manchester. Both are recognizable places by name and image, in large part to public improvements to the right-of-way. These environments allow most to park once, then comfortably walk to one or more destinations. Improvements in these places are generally made to make pedestrians feel comfortable—pedestrian scale lighting, benches, and other improvements, many with noticeable artistic details which add interest to those strolling around these places. Combined, these aspects help to reinforce each place's identity and make one's experience memorable.

Figure 4-1 – Wabash and Market streets looking northwest, downtown Wabash.

Figure 4-2 – Main Street looking East at Market Street, downtown North Manchester.

The following observations may warrant further action to further improve these spaces.

- Trucks and through traffic in downtown Wabash. While there is an official truck route for SR-15 apart from Market and Canal streets, it is circuitous. Shortening this route's travel time may divert trucks out of downtown, creating a quieter and more pedestrian friendly environment. Re-routing truck and other traffic may allow for some streets to accommodate two-way traffic, if desired.
- Both Wabash and North Manchester appear to have comparably less sidewalk dining activity than similar communities, possibly due to insufficiently wide sidewalks.
- Both downtowns have wide expanses of pavement and prominent on-street parking. While on-street parking is a good and necessary thing, the wide expanses without curb extensions make pedestrian crossings longer than needed. Where present, street trees are small and appear as if they will offer little shade.
- It may be advisable to consider converting North Manchester's pull in angle parking with back-in angled parking—which can be more convenient for those parking and safer for those driving or biking in the street.

In contrast, more recently developed commercial corridors in Wabash and North Manchester are drastically different. These streets were designed for automobile use only, lacking sidewalks or paths to accommodate other users. Adjacent development is low density, has little character. Aside from not satisfying the needs of all users, including pedestrians and bicyclists, Figures 4-3 and 4-4 are nearly indistinguishable from many other places across the nation.

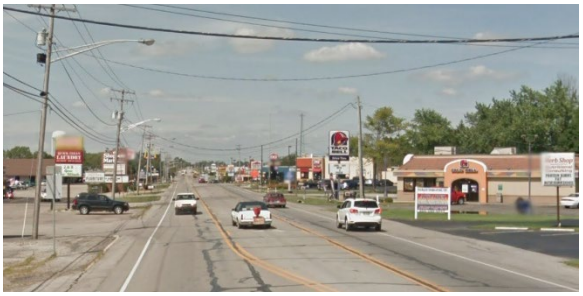


Figure 4-3 – SR-15 or Cass Street, looking northwest approximately 200 feet northwest of Harrison Avenue.

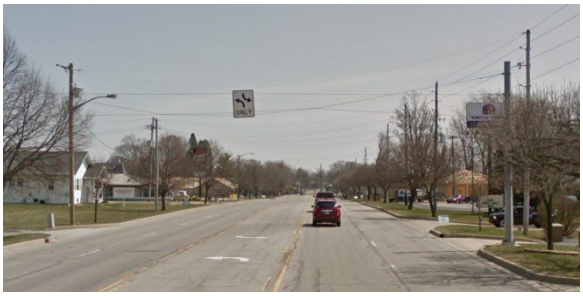


Figure 4-4 – SR-114 or County Road 1200N, looking east from approximately 200 feet east of Colonial Lane.

This is not to say all streets can or should be improved to look like downtown Wabash or North Manchester. Streetscapes and right-of-way improvements should support their context and accommodate the needs of those who are present—not try to make a street something that it is not.

2. HAZARD MITIGATION

In order to promote safety and resiliency, a community's comprehensive plan should work in tandem with its hazard mitigation efforts. This chapter evaluates the primary findings of the 2019 Wabash County Multi-Hazard Mitigation Plan and identifies other potential hazards that were not included in the latest plan.

KEY FINDINGS

- **Hazardous Materials Incidents were identified as the highest vulnerability in the County.** This was based on factors such as risk probability, magnitude/severity, warning time, and the duration of the incident for each event.
- **Public education and outreach is the County's highest priority mitigation practice.** It meets the criteria of 5 out of the 6 primary mitigation strategies and can apply to all 11 identified hazards.
- **Biological Hazards, including global pandemics, are not addressed in the current MHMP.** These types of hazards follow similar patterns to Natural Hazards.

1. Multi-Hazard Mitigation Plan Overview

The Wabash County Multi-Hazard Mitigation Plan Update replaced the previous plan from 2011. According to FEMA, mitigation efforts are most effective when they are based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

DISASTER LIFE CYCLE

The Federal Emergency Management Agency (FEMA) defines the disaster life cycle as the process through which emergency managers respond to disasters when they occur; help people and institutions recover from them; reduce the risk of future losses; and prepare for emergencies and disasters. The disaster life cycle, can be broken down into 4 phases:

1) **Response** - the mobilization of the necessary emergency services and first responders to the disaster area (search and rescue; emergency relief)
2) **Recovery** - to restore the affected area to its previous state (rebuilding destroyed property, re-employment, and the repair of other essential infrastructure)
3) **Mitigation** - to prevent or to reduce the effects of disasters (building codes and zoning, vulnerability analyses, public education)
4) **Preparedness** - planning, organizing, training, equipping, exercising, evaluation and improvement activities to ensure effective coordination and the enhancement of capabilities (preparedness plans, emergency exercises/training, warning systems)

Figure 4-4 Disaster Life Cycle

PLAN BACKGROUND

The 2019 Wabash County Multi-Hazard Mitigation Plan (MHMP) was a multi-jurisdictional planning effort led by the Wabash County Emergency Management Agency (EMA). Plan partners included Wabash County, the Towns of LaFontaine, Lagro, North Manchester, and Roann; and the City of Wabash. The overall goal of the Wabash County MHMP is to reduce the social, physical, and economic losses associated with hazard incidents through emergency services, natural resource protection, prevention, property protection, public information, and structural control mitigation practices.

Communities are required to have a MHMP approved by the Federal Emergency Management Agency (FEMA) in order to maintain eligibility to various grant funding programs such as the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), and Flood Mitigation Assistance (FMA). An adopted MHMP is also crucial for communities looking to access mitigation funds through the National Flood Insurance Program (NFIP).

In order to guide the development of the MHMP, a committee that included staff from a variety of local departments and agencies was formed. The planning process also relied on an analysis of existing community plans and other technical reports. There were also opportunities for public engagement.

PLAN STRUCTURE

The 2019 MHMP Update analyzed the same hazards that were reviewed in the 2011 MHMP and the 2014 Indiana MHMP. This included three additional topics that were not included in the 2011 plan (Drought, Extreme Temperature, and Land Subsidence). These were separated into two categories - natural hazards and technological hazards.

Natural Hazards included:

- **Drought** - a moisture deficit extensive enough to have social, environmental, or economic effects.
- **Earthquake** - a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface.
- **Extreme Temperature** - a temporary elevation of average daily temperatures that hover 10 degrees or more above the average high temperature for the region for the duration of several weeks.
- **Flood** - a general and temporary condition of partial or complete inundation or two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waters and unusual and rapid accumulation or runoff of surface waters from any sources, or a mudflow.
- **Hail / Thunder / Wind**
    - Hail occurs when frozen water droplets form inside a thunderstorm cloud, and then grow into ice formations held aloft by powerful thunderstorm updrafts, and when the weight of the ice formations becomes too heavy, they fall to the ground as hail.
    - Thunderstorms are defined as strong storm systems produced by a cumulonimbus cloud, usually accompanied by thunder, lightning, gusty winds, and heavy rains. Windstorms or high winds can result from thunderstorm inflow and outflow, or downburst winds when the storm cloud collapses, and can result from strong frontal systems, or gradient winds.
    - Windstorms or high winds can result from thunderstorm inflow and outflow, or downburst winds when the storm cloud collapses, and can result from strong frontal systems, or gradient winds.

- **Landslide / Subsidence**
    - The term landslide includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows.
    - Land subsidence, according to the USGS, is "a gradual settling or sudden sinking of the Earth's surface owing to subsurface movement of earth materials".
- **Tornado** - defined as violently rotating columns of air extending from thunderstorms to the ground.
- **Wildfire** - also known as a forest fire, vegetation fire, or a bushfire, is an uncontrolled fire in wildland areas and is often caused by lightning; other common causes are human carelessness and arson.
- **Winter Storm / Ice** - A winter storm can range from moderate snow over a few hours to blizzard conditions with high winds, ice storms, freezing rain or sleet, heavy snowfall with blinding wind-driven snow, and extremely cold temperatures that can last for several days.

Technological Hazards included:

- **Dam Failure** - A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. A dam failure is a collapse, breach, or other failure resulting in downstream flooding.
- **Hazardous Material Incident** - Hazardous materials are substances that pose a potential threat to life, health, property, and the environment if they are released. Despite precautions taken to ensure careful handling during manufacture, transport, storage, use, and disposal, accidental releases are bound to occur. Emergency response may require fire, safety/law enforcement, search and rescue, and hazardous materials response units.

A risk assessment was conducted for each hazard to determine the vulnerability of buildings, infrastructure, and people in a community and measure potential loss. Following the methodology laid out in FEMA's 2008 Local Multi-Hazard Mitigation Planning Guidance, the Wabash MHMP identifies the characteristics and potential consequences of hazards, how much of the community may be affected by a hazard, and the impact on community assets.

Hazard were studied using the following criteria:

- **Probability** - defined as the likelihood of the hazard occurring over a given period.
- **Magnitude / Severity** - defined by the extent of the injuries, shutdown of critical infrastructure, the extent of property damage sustained, and the duration of the incident response.
- **Warning Time** - defined as the length of time before the event occurs
- **Duration** - defined as the length of time that the actual event occurs (does not include response or recovery efforts).
- **CPRI Value** -the CRPRI value can be obtained by assigning varying degrees of risk probability, magnitude/severity, warning time, and the duration of the incident for each event, and then calculating as index value based on a weighted scheme.

Table 1: Combined CPRI

Type of Hazard	List of Hazards	Weighted Average CPRI in Wabash County
Natural	Drought	
	Earthquake	
	Extreme Temperature	
	Flood	
	Hail/Thunder/Windstorm	
	Landslide/Subsidence	
	Tornado	
	Wildfire	
	Winter Storm/Ice	
Technological	Dam Failure	
	Hazardous Materials Incident	

PLAN RECOMMENDATIONS

The recommended mitigation practices laid out in the 2019 Wabash MHMP were the result of careful evaluation of the existing mitigation practices. The six primary mitigation practices defined by FEMA are:

- **Emergency services - measures that protect people during and after a hazard**
- **Natural resource protection** - opportunities to preserve and restore natural areas and their function to reduce the impact of hazards
- **Prevention** - measures that are designed to keep the problem from occurring or getting worse
- **Property protection** - measures that are used to modify buildings subject to hazard damage rather than to keep the hazard away
- **Public information** - those activities that advise property owners, potential property owners, and visitors about the hazards, ways to protect themselves and their property from the hazards
- **Structural control** - physical measures used to prevent hazards from reaching a property

Proposed recommendations included improvements to the existing practices from the 2011 MHMP, as well as brand new practices that would address unmet needs. New ideas were evaluated using the following criteria:

- **Social** - mitigation projects will have community acceptance, they are compatible with present and future community values, and do not adversely affect one segment of the population
- **Technical** - mitigation project will be technically feasible, reduce losses in the long-term, and will not create more problems than they solve
- **Administrative** - mitigation projects may require additional staff time, alternative sources of funding, and have some maintenance requirements
- **Political** - mitigation projects will have political and public support
- **Legal** - mitigation projects will be implemented through the laws, ordinances, and resolutions that are in place
- **Economic** - mitigation projects can be funded in current or upcoming budget cycles
- **Environmental -** mitigation projects may have negative consequences on environmental assets such as wetlands, threatened or endangered species, or other protected natural resources

A total of eleven proposed mitigation practices were included in the 2019 MHMP. Each practice may align with multiple mitigation strategies and be applicable to a number of different hazards. Additional information related to the local status, local priority, benefit-cost ratio, project location, responsible entity, and potential funding source accompanied each proposed practice.

Table 2: Proposed Mitigation Practice Overview

Mitigation Practice	Related Comprehensive Plan Topics	Mitigation Strategy	Hazards Addressed
Public Education & Outreach	Land Use Public Health & Resiliency Public Facilities & Services	Emergency Services Nat Res Protection Prevention Property Protection Public Information	Drought Earthquake Extreme temperature Flood Hail/Thunder/Wind Landslide/Subsidence Tornado Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Hazardous Materials	Public Health & Resiliency Transportation Public Facilities & Services	Emergency Services Prevention Property Protection	Earthquake Flood Hail/Thunder/Wind Landslide/Subsidence Tornado Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Emergency Preparedness & Warning	Public Facilities & Services Public Health & Resiliency	Emergency Services Nat Res Protection Prevention Property Protection Public Information	Drought Earthquake Extreme temperature Flood Hail/Thunder/Wind Landslide/Subsidence Tornado Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Geographic Information Systems	Land Use Transportation Public Facilities & Services	Emergency Services Nat Res Protection Property Protection Public Information	Drought Earthquake Extreme temperature Flood Hail/Thunder/Wind Landslide/Subsidence Tornado Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Safer Rooms & Community Shelters	Housing	Emergency Services Public Information	Earthquake Extreme temperature

	Public Health & Resiliency Public Facilities & Services	Structural Control	Flood Hail/Thunder/Wind Landslide/Subsidence Tornado Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Power Back-Up Generators	Transportation Public Facilities & Services	Emergency Services Prevention Property Protection	Earthquake Flood Hail/Thunder/Wind Landslide/Subsidence Tornado Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Building Protection	Land Use Public Facilities & Services	Emergency Services Nat Res Protection Prevention Property Protection Public Information Structural Control	Earthquake Flood Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Emergency Response & Recovery	Transportation Public Health & Resiliency Public Facilities & Services	Emergency Services Nat Res Protection Prevention Public Information	Drought Earthquake Extreme temperature Flood Hail/Thunder/Wind Landslide/Subsidence Tornado Wildfire Winter Storm/Ice Dam Failure HazMat Incident
Community Rating System	Land Use Economic Development Housing	Emergency Services Nat Res Protection Prevention Property Protection Public Information Structural Control	Flood
Floodplain Management	Land Use Agriculture Natural Resources Public Facilities & Services	Emergency Services Nat Res Protection Prevention Property Protection Public Information Structural Control	Flood

Management of High Hazard Dams	Natural Resources Public Facilities & Services	Emergency Services Nat Res Protection Prevention Property Protection Public Information	Earthquake Flood Landslide/Subsidence Dam Failure

PLAN IMPLEMENTATION

The Implementation Plan lays out a framework on how to enact the high priority mitigation practices proposed in the MHMP. The proposed mitigation practices are listed in order of importance to Wabash County for implementation and were categories into High, Moderate, and Low local priorities. High priority projects should be implemented within five years from the adoption of the plan. Moderate projects should have an implementation timeline of five to ten years. Finally, projects with a low local priority designation may be implemented more than ten years from plan adoption.

Mitigation practices may be implemented independently, by the individual NFIP communities, or through local partnerships, depending on the availability of grant opportunities or other fiscal resources. Successful implementation of the MHMP will require the participation and cooperation of all participating communities .

Table 3: Proposed Mitigation Practice Implementation Matrix

Mitigation Practice	Priority	Benefit-Cost Ratio	Funding Source
Public Education & Outreach	High	High	Existing Budget
Hazardous Materials	High	Moderate	Existing Budget
Emergency Preparedness & Warning	High (*CERT, warning sirens*) Moderate (*COAD, mobile message boards, weather radios*)	High	Existing Budget Grants
Geographic Information Systems	High (*address verification*) Moderate (*dry hydrant layer, training*)	Low	Existing Budget
Safer Rooms & Community Shelters	High (*harden public facilities*)	High	Existing Budget

	Low (*incentives, advertisement, recreational and mobile home parks*)		Facility owners
Power Back-Up Generators	High (*generators*) Low(f*uel reserve, fuel route, wind, or solar generators*)	Low	Existing Budget Grant
Building Protection	High (*protect existing critical facilities, dry hydrants, fire equipment*) Moderate (*existing, non-residential, non-critical*) Low (*inertial valves, at-risk structures*)	Moderate	Grant Existing Budget
Emergency Response & Recovery	High (*data terminals, evacuations, water rescue team*) Moderate (*immunizations, record-keeping, sand bagging equipment, snow routes, snow equipment*) Low (*reciprocal agreements, new EOC*)	Moderate	Existing Budget Grant
Community Rating System	Moderate	Moderate	Existing Budget
Floodplain Management	Moderate	Moderate	Existing Budget Grant
Management of High Hazard Dams	Low	Moderate	Existing Budget

2. Multi-Hazard Mitigation Plan Evaluation

A key component to the overall success of Wabash's MHMP is the need to constantly monitor, evaluate, and update the contents of the plan. While the 2019 MHMP provided several important updates that were not present in the 2011 version, recent events prove there are still additional hazard topics that should be considered moving forward.

CONNECTIONS TO A COMPREHENSIVE PLAN

A key component of ongoing implementation will be incorporating the MHMP's recommendations into existing planning documents and ordinances. Necessary modifications will be proposed to be made to each NFIP communities' planning documents and ordinances during the regularly scheduled update. This applies to comprehensive planning efforts that may go on to inform updated zoning ordinances, floodplain management ordinances, building codes, site development regulations, or permits. Potential modifications may include discussions related to hazardous material facility buffers, floodplain areas, and discouraging development of new critical infrastructure in known hazard areas.

BIOLOGICAL HAZARDS

Widespread biological hazards such as the COVID-19 pandemic follow a disaster life cycle pattern that mimics other natural disasters. Because of this, the County should look to prepare for these incidents in a similar manner.

The COVID-19 pandemic originated in China in the winter of 2019. As of Quarter 1, 2021, COVID has infected more than 80 million people worldwide and has led to at least 1.7 million deaths[5]. Classified as a novel coronavirus, this infectious disease is transmitted mainly through the exposure of respiratory droplets. The first reported cases in the United States were noted by public health agencies in January 2020. While major metros such as New York City and Seattle were impacted during the initial surge, COVID eventually made its way from the coasts to the interior of the country causing subsequent surges in the South and the Midwest.

The State of Indiana did not receive its first confirmed COVID case until March 6, 2020. Indiana's first reported death due to COVID followed several days later on March 16th. By the end of March 2020, the United States became the hardest hit country with more reported cases than any other country at the time. Indiana's positive cases showed gradual growth during the summer before rapidly escalating throughout the fall and into the winter. As of March 2021, Indiana has experienced 662,750 total positive cases and 12,192 deaths.

According to Indiana's COVID-19 Dashboard, Wabash County has 3,314 reported cases and 76 deaths as of March 2021. The County reported its first positive case in early April 2020, a little over a month after Indiana's first confirmed case. While rural counties such as Wabash have much lower overall cases of COVID, they have higher cases per 100,000 residents than the more populous counties such as Marion or Lake. This demonstrates that high rates of infection can still occur in places that lack urban or suburban density. Similarly to the state, Wabash experienced its highest positivity rates during late November 2020.

[5] https://www.nytimes.com/article/coronavirus-timeline.html

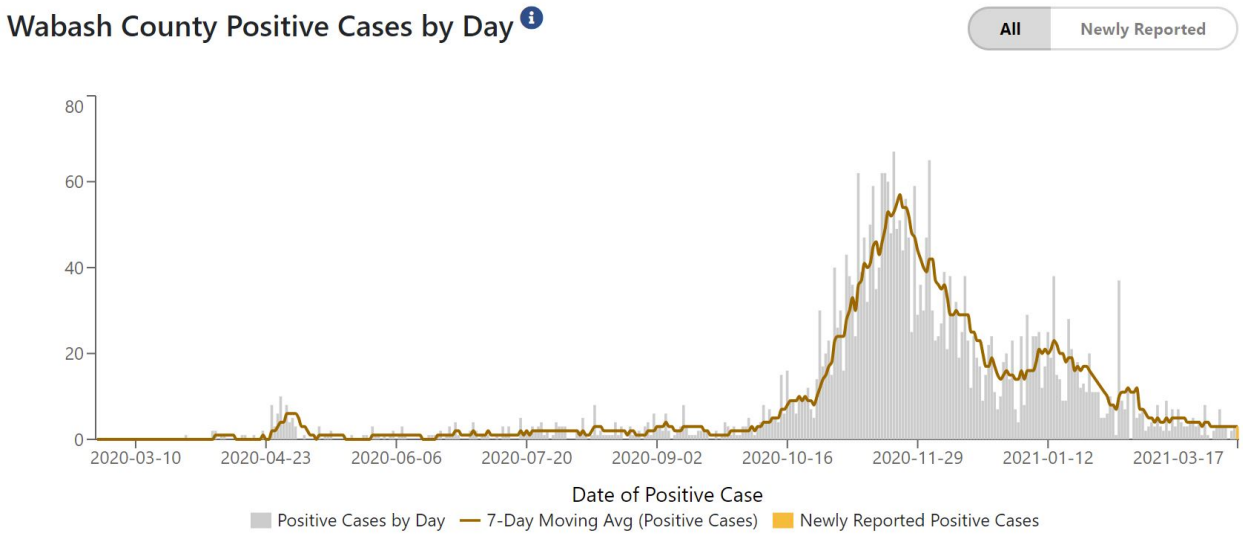


Figure 4-5: Wabash County Profile - Indiana COVID 19 Dashboard

Wabash County has a total ICU capacity of 317 beds and a total ventilator capacity of 269. The County saw its highest ICU beds usage by COVID patients in December 2020 (46.6%). The County almost exhausted all of its ICU capacity in early August, but 82.2% of the beds were taken by non-COVID patients. Throughout the pandemic, Wabash County has maintained wide availability of its supply of ventilators and has never fallen below 50%. The County should continue to be mindful of its capacity, especially as new variants of COVID continue to surface.

ADDITIONAL TECHNOLOGICAL HAZARDS

A technological threat that is becoming more prevalent are ransomware attacks. Ransomware is a form of malicious software used by cyber actors that targets data and systems for extortion. While not an area that is typically included in mitigation plans, ransomware is the fastest growing malware threat that targets a wide spectrum of users including organizations, businesses, and local government entities of all sizes. These types of incidents can have severe impacts related to critical infrastructure and data privacy.

In July 2019, government officials in La Porte County, IN were hit by a ransomware attack that disabled their computer network, website, and email service systems. La Porte eventually agreed to pay $130,000 in bitcoin to regain access. While local municipalities are a preferred target for cyber criminals, their focus has also expanded to education and healthcare.

The Cybersecurity & Infrastructure Security Agency (CISA) works to maintain awareness of these kinds of attacks and associated tactics, techniques, and procedures across the country. At the state level, the Indiana Cyber Security Hub provides an assessment tool as well as best practices, standards, and resources for local governments.

3. PUBLIC FACILITIES AND SERVICES

The Public Facilities and Services chapter takes inventory of the different utility services, facilities, and infrastructure that are currently provided by the City of Wabash, the Towns of North Manchester, LaFontaine, Lagro, and Roann, and the unincorporated areas in Wabash County.

KEY FINDINGS

- **Approximately one-third of residents lack access to high-speed internet.** Fiber optic internet is limited within the County; only the City of Wabash and the Town of North Manchester have access to fiber.
- **Improving Combined Sewer Overflow (CSO) is an area of focus.** Wabash and North Manchester both have Long-Term Control Plans related to their stormwater and sanitary systems.
- **Septic system monitoring and maintenance in the unincorporated portions of the county are necessary to protect and improve water quality.** Failures of the residential septic systems, especially in clusters, are deleterious to surface and groundwater quality. These systems are prevalent outside of the water and sewer service areas and there have been recent, notable failures.

1. State of Indiana Overview

This section describes how municipal service is provided in Indiana and identifies some of the key state government agencies that regulate these utilities.

INDIANA STATUTE OVERVIEW

Indiana law allows municipalities to establish and regulate utility service to the public. These types of services may include water, power, gas, wastewater, and sewer. Indiana's statutes apply to all providers whether they are the state, county, city, or private companies. Rates and charges of most municipal utilities in Indiana are set at the local government level.

487 water, electric and natural gas utilities are owned and operated by city and town governments in Indiana. 449 of these utilities (92 percent) have withdrawn from Indiana Utility Regulatory Commission (IURC) jurisdiction over their rates, charges and finances as allowed by state law.

INDIANA UTILITY REGULATORY COMMISSION

The Indiana Utility Regulatory Commission (IURC) is an administrative agency that hears evidence in cases filed before it and makes decisions based on the evidence presented in those cases. An advocate of neither the public nor the utilities, the Commission is required by state statute to make decisions in the public interest to ensure the utilities provide safe and reliable service at just and reasonable rates.

The Commission regulates electric, natural gas, steam, water, and wastewater utilities that may be investor-owned, municipal, not-for-profit, or cooperative utilities, or operate as water conservancy districts. The Commission's authority over municipal wastewater utilities is limited to petitions and disputes regarding rates and charges. Under state law, municipal sewer utilities are exempt from IURC jurisdiction.

Indiana statutes allow municipal utilities, not-for-profit corporations, and electric companies to remove themselves from certain aspects of the Commission's authority (such as rates and charges) by ordinance of

the local governing body or by a majority vote of the people in the municipalities and services territories for customers outside of the municipal corporate boundaries.

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

The Indiana Office of Utility Consumer Counselor (OUCC) is one of the oldest state agencies of its type and seeks to give all Indiana consumers a voice when decisions are made that could affect utility rates and services. The OUCC represents the interests of residential, commercial, and industrial utility customers in cases before the IURC, the Federal Energy Regulatory Commission (FERC), and the Indiana Court of Appeals and Indiana Supreme Court.

2. City of Wabash

This section provides an overview of the services and facilities provided by the City of Wabash.

WASTEWATER PLANT

The City of Wabash operates a Class III activated sludge facility. This wastewater plant utilizes mechanical bar screens, submersible pumps, oxidation ditches, circular clarifiers, and ultra-violet disinfection to treat wastewater before it is discharged back to the Wabash River. The facility is rated at 4 MGPD (million gallons per day) and has a peak flow rate of 10 MGPD for 1 hour. The facility has a sustainable flow treatment of 7 MGPD during wet weather events.

The Wabash Wastewater Plant removes biosolids through aerated primary digesters. They are then recirculated between digestion and thickening tanks (stabilization) until final storage at the final aerated digesters. The biosolids remain here until the solids are sent to the facility's 10 reed beds where they stay continually stabilizing for as long as 12 years.

The facility is staffed by 5 state licensed wastewater operators, an operator in training (OIT), 2 billing clerks, and an office manager.

Figure 4-6: City of Wabash Sewage Plant

STORMWATER

Combined Sewer Overflows (CSOs) are an early form of infrastructure in which both stormwater runoff and untreated wastewater flow through the same pipes. In dry weather, all wastewater is transported directly to the treatment plant; when wastewater volume exceeds capacity, however, the excess wastewater overflows into nearby natural waterbodies, carrying toxins and contaminants. The Environmental Protection Agency and the Indiana Department of Environmental Management now require municipalities with CSOs to adopt mitigation strategies to comply with the Clean Water Act and to improve water quality.

The City of Wabash is currently implementing its Combined Sewer Overflow Long Term Control Plan. Once all 4 phases are complete (by 2025), Wabash's stormwater infrastructure will be reduced to 20-30% CSO.

FIBER

Wabash is one of only two communities in the County with access to fiber optic internet. Fiber is provided by Metronet Holdings, LLC with rates starting at $49.95/month and covering 67% of the county. All other broadband access utilizes asymmetric digital subscriber line (ADSL), cable, fixed wireless, or satellite.

FIRE

The City of Wabash Fire Department employs 31 staff, most of whom are firefighter / paramedics and EMTs. The department operates out of two stations – the North Station on N. Wabash St, and the South Station on Vernon St.

POLICE

The City of Wabash operates a Police Department with 29 staff.

SOLID WASTE AND RECYCLING

The City of Wabash contracts with Republic Services to provide curbside trash service to its residents.

3. Town of North Manchester

This section provides an overview of the services and facilities provided by the Town of North Manchester.

NORTH MANCHESTER MUNICIPAL WATER

North Manchester sources its water from 5 wells in 2 different aquifers that is then pumped to the water treatment plant. The system has a capacity of 1.8 MGPD and an average daily consumption of 1.0 MGPD. The water undergoes multiple treatment processes including aeration and filtration to remove iron and disease-causing bacteria. The North Manchester Water Department routinely monitors for substances in the drinking water according to all Federal and State laws.

WATERWATER PLANT

North Manchester operates a conventional activated sludge plant to treat around 250 million gallons annually of wastewater. Current treatment at the wastewater plant produces 99% BOD removal, 98% Ammonia removal, and 97% total solids removal on a daily basis. The treated water is then returned to the Eel River. Around 120 dry tons of biosolids are produced by the facility annually and utilized by local farmland to replenish nutrients in the soil.

The wastewater facility has a team of 6 individuals who manage the town's wastewater treatment plant, collection system, and stormwater system. This team performs various tasks including laboratory analysis, maintenance of equipment, grounds keeping, sewer cleaning, catch basin cleaning, locating utilities, etc.

STORMWATER / SANITARY SEWER

The Town's sewer system is a combined storm/sanitary system with over 28 miles of sanitary and 12 miles of storm pipe. The sanitary system covers 100% of the community and has an average daily load of 950,000 - 1.0 MGPD and an overall capacity of 1.25 MGPD. The stormwater system covers 60% of the community.

North Manchester's Long Term Control Plan seeks to reduce and/or eliminate all wet weather Combined Sewer Overflows through several projects to meet EPA water quality standards.

FIBER

North Manchester is the second community in Wabash County that has access to fiber optic internet. Fiber providers include Frontier Communications Corporation and Metronet Holdings, LLC. Similarly to the City of Wabash, other broadband access relies on asymmetric digital subscriber line (ADSL), cable, fixed wireless, or satellite.

FIRE

The North Manchester Fire Department provides fire protection, emergency medical first response, fire prevention and education, and other services to the community. The department employs three full-time drivers and relies on 25 volunteer firefighters. Seven volunteers also serve part-time as relief drivers.

POLICE

The North Manchester Police Department has 11 full-time offers and also coordinates a Police Reserve unit.

Manchester University's Office of University Safety consists of 7 full-time officers and 4 part-time officers.

SOLID WASTE AND RECYCLING

The Town of North Manchester provides its residents with weekly curbside trash service and bi-weekly recycling through cooperation with Republic Services.

4. Towns of LaFontaine, Lagro, and Roann

This section provides an overview of the services provided by the Towns of LaFontaine, Lagro, and Roann.

LAFONTAINE

The Town of LaFontaine operates a waterworks and sewer works utility for the benefit of ratepayers located within the Town as well as the surrounding areas. Residents can start or stop water, wastewater, sanitation and stormwater services by visiting the LaFontaine Town Hall. The LaFontaine – Liberty Township Volunteer Fire Department provides fire protection services. Police services are provided by a Town Marshal and the Wabash County Sheriff's Department.

LAGRO

The Town of Lagro provides the following utility services to their residents: water, wastewater and sanitation. Lagro's utility superintendent is housed within the public works department. The Lincolnville – Lagro Township Volunteer Fire Department provides fire protection services.

ROANN

The Town of Roann's municipal water distribution system is operated by Roann Water Utility. Wastewater in the community is handled by Roann's Municipal Sewage Works. The Roann Volunteer Fire Department provides fire protection services, and the Town Marshal's office provides police and safety services.

5. Unincorporated Communities and Countywide Services

This section provides an overview of the services provided to the County at large and to unincorporated communities like Liberty Mills, Urbana, Ijamsville, Servia and others.

FIRE

The unincorporated areas of Wabash County are served by volunteer fire departments in a number of townships. In addition to the fire departments associated with the cities and towns listed above, the following departments operate throughout the county:

- Chester Township Fire Department
- Noble Township Fire Department
- Pleasant Township Fire Department
- Urbana Community Volunteer Fire Department

POLICE

The Wabash County Sheriff's Department provides police and safety services to unincorporated areas of the county. The department has 14 employees.

INTERNET

Internet access in the County is better and more concentrated in the larger communities. Whereas most households in the City of Wabash and the Town of North Manchester have more than three options for internet service providers, many households in the County have only one or two choices and others have none. Fiber and high-speed technology are less available in the unincorporated areas of the County, and approximately 4,000 people do not have access to any wired internet. Countywide, approximately 10,000 people do not have access to download speeds of at least 25 megabits per second (Mbps);[6] this means that one-third of the County lacks high-speed internet, or broadband, as defined by the Federal Communications Commission (FCC).

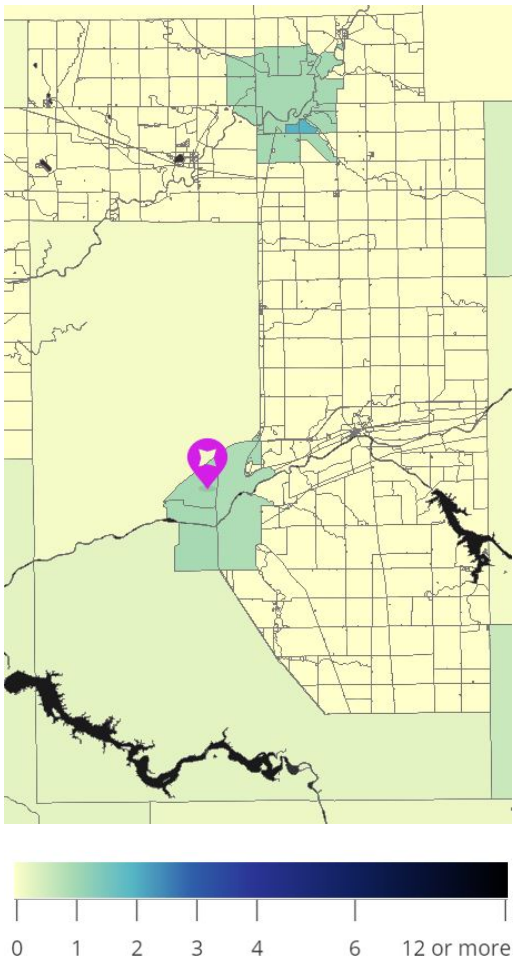


Figure 4-7: Number of Fiber Internet Providers in Wabash County

SOLID WASTE AND RECYCLING

The Wabash County Solid Waste Management District offers a variety of solid waste management and recycling services to all residents in Wabash County. Residents may drop off recyclable materials and hazardous waste to the site located on Manchester Avenue in Wabash.

SEPTIC SYSTEMS

Unincorporated portions of the county utilize well and septic systems for water and waste handling. These systems are appropriate in more rural areas with limited density and/or service coverage from municipal sources. Residential wells tap into the groundwater aquifer and pump potable water into the residence for use. These are typically bored, driven or drilled

[6] https://broadbandnow.com/Indiana/North-Manchester

based on the underlying substrate. The location of wells is important especially when household water system is paired with on-site wastewater treatment provided by a septic tank and leach field.

A septic system provides an on-site alternative to wastewater and is common for residential properties that are built outside of a sewer service area. These systems treat wastewater and effluent using a tank (septic tank) and leach field. “Leaching” is a slow process where effluent is further treated as it permeates the surrounding soil. Soil types determine where such a system can be safely installed, and siting should follow a site review, soil evaluation, and permeability tests. Additionally, septic systems are not static and require ongoing maintenance. This includes periodic pumping of the tank, rotating the leach field, and general inspections of the supportive systems. These systems can easily fail without regular maintenance or based on in-proper siting / installation.

Septic failures, especially those happening in a cluster, can impact water quality both at the surface and in the groundwater aquifer. Monitoring and maintenance are paramount especially in areas with older, clustered housing.

KOSCIUSKO COUNTY

WHITLEY COUNTY

MIAMI COUNTY

HUNTINGTON COUNTY

GRANT COUNTY

LIBERTY MILLS

NORTH MANCHESTER

EEL RIVER

LAKETON

IJAMSVILLE

SERVIA

ROANN

URBANA

WABASH

RICHVALLEY

LAGRO

WABASH RIVER

SALAMONIE LAKE

WABASH MUNICIPAL AIRPORT

MISSISSINEWA LAKE

LA FONTAINE

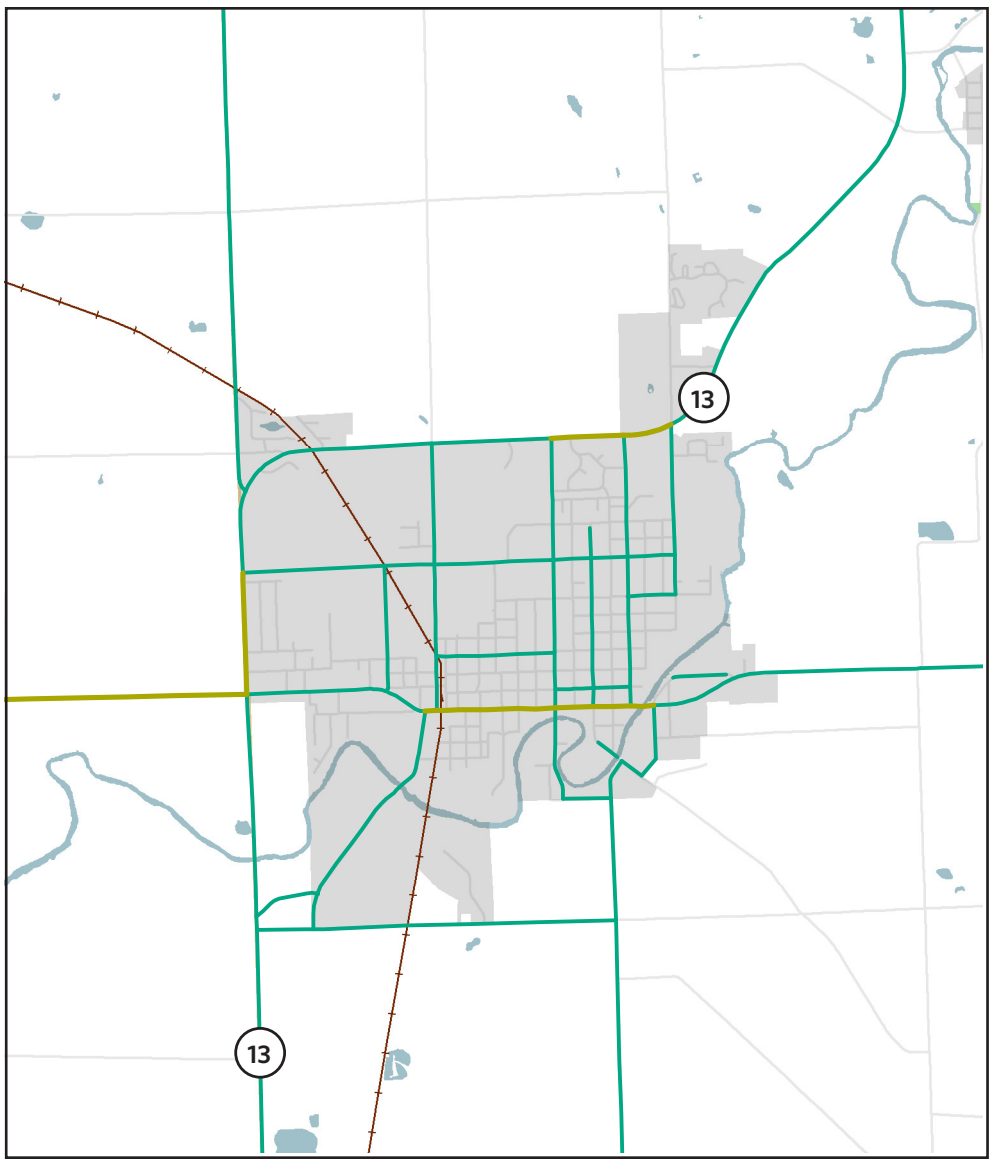
13 15 16 24 113 114 115 124 218

IMAGINE ONE 85

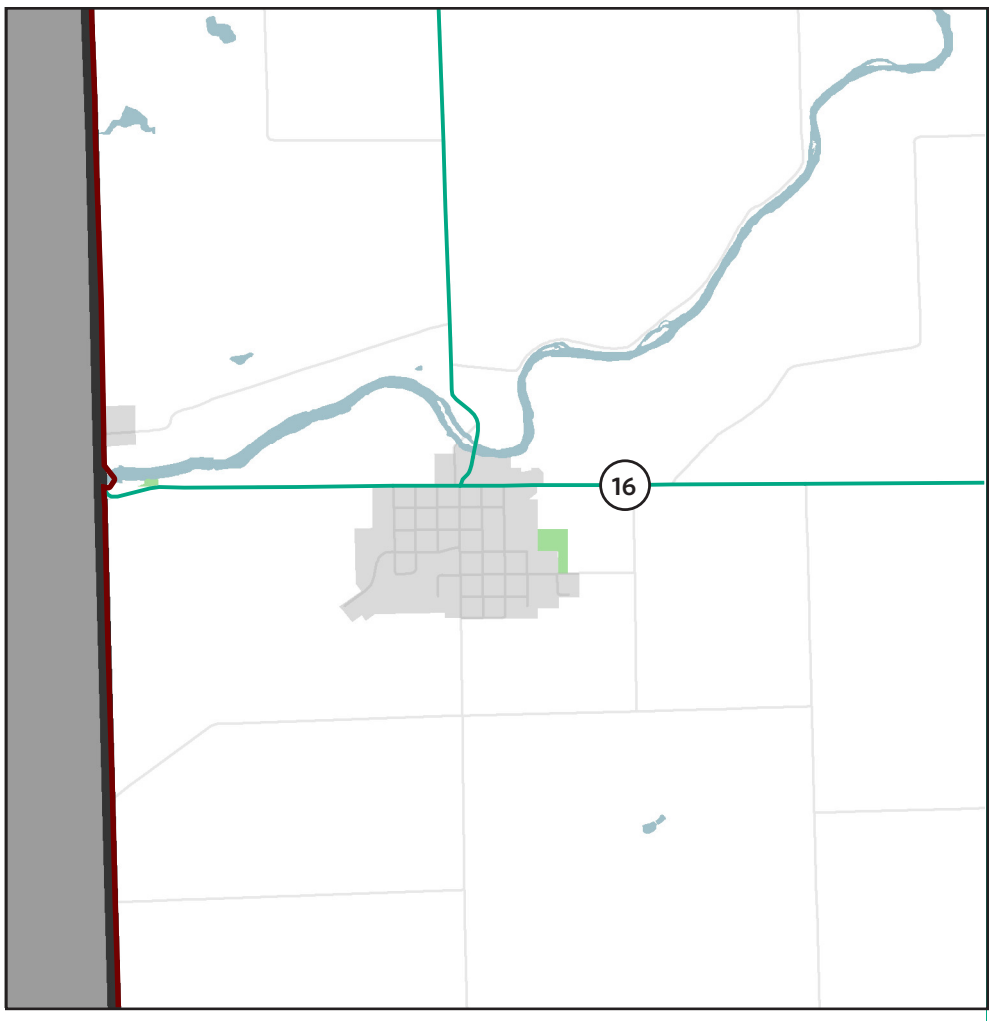
MAP 4.1 CORRIDOR TRAFFIC

COUNTYWIDE VIEW

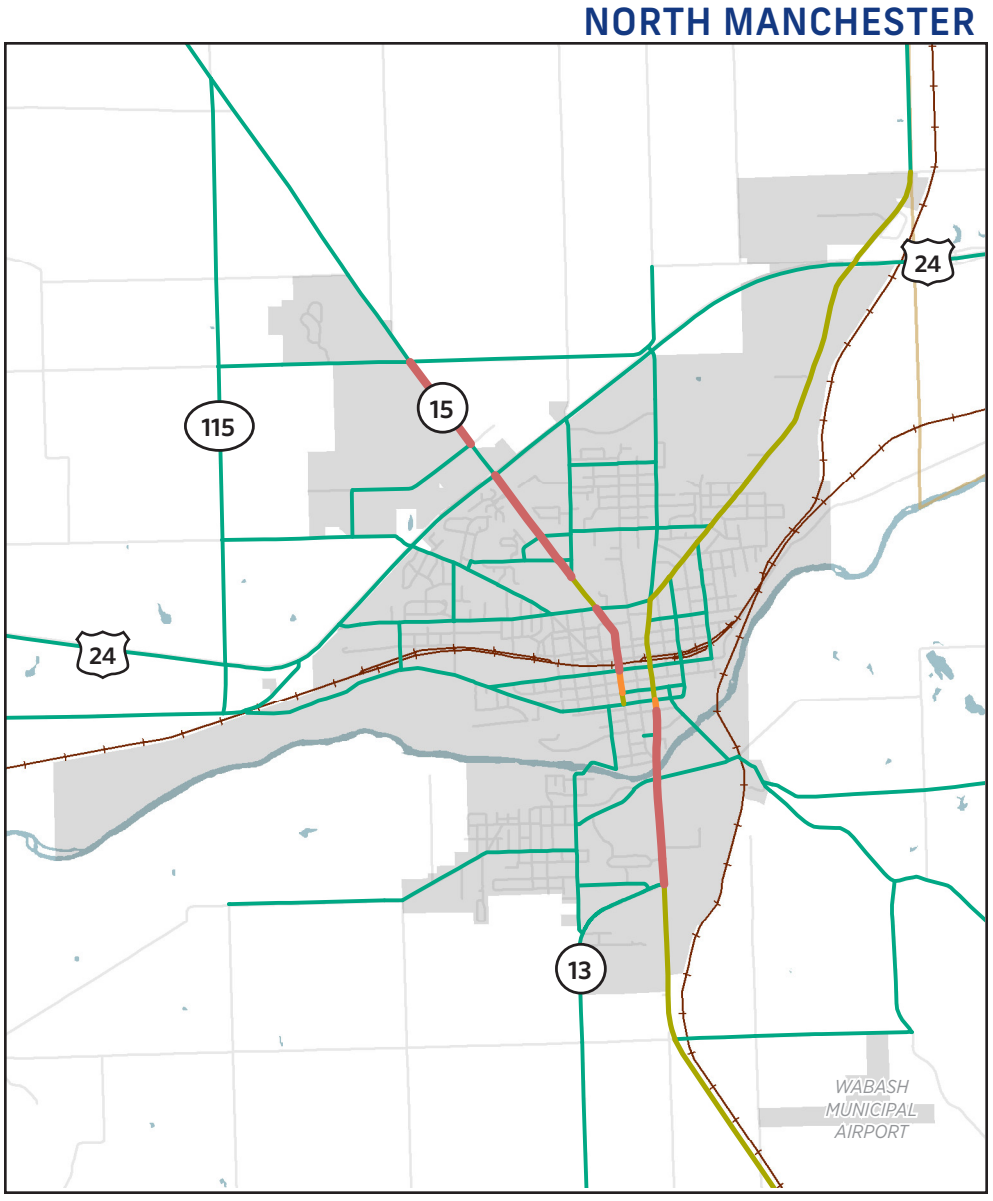
- LOS C or Better
- LOS D
- LOS E
- LOS F
- US Highway
- State Highway
- Wabash County
- Counties
- Railroad
- Water



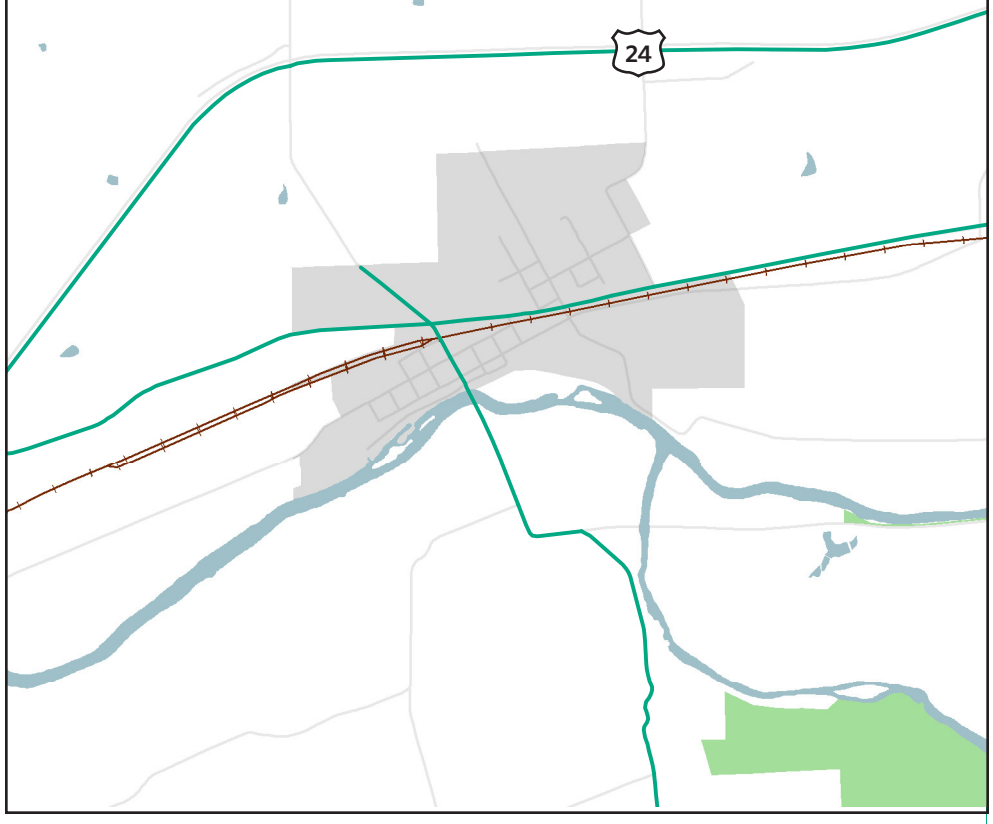
NORTH MANCHESTER



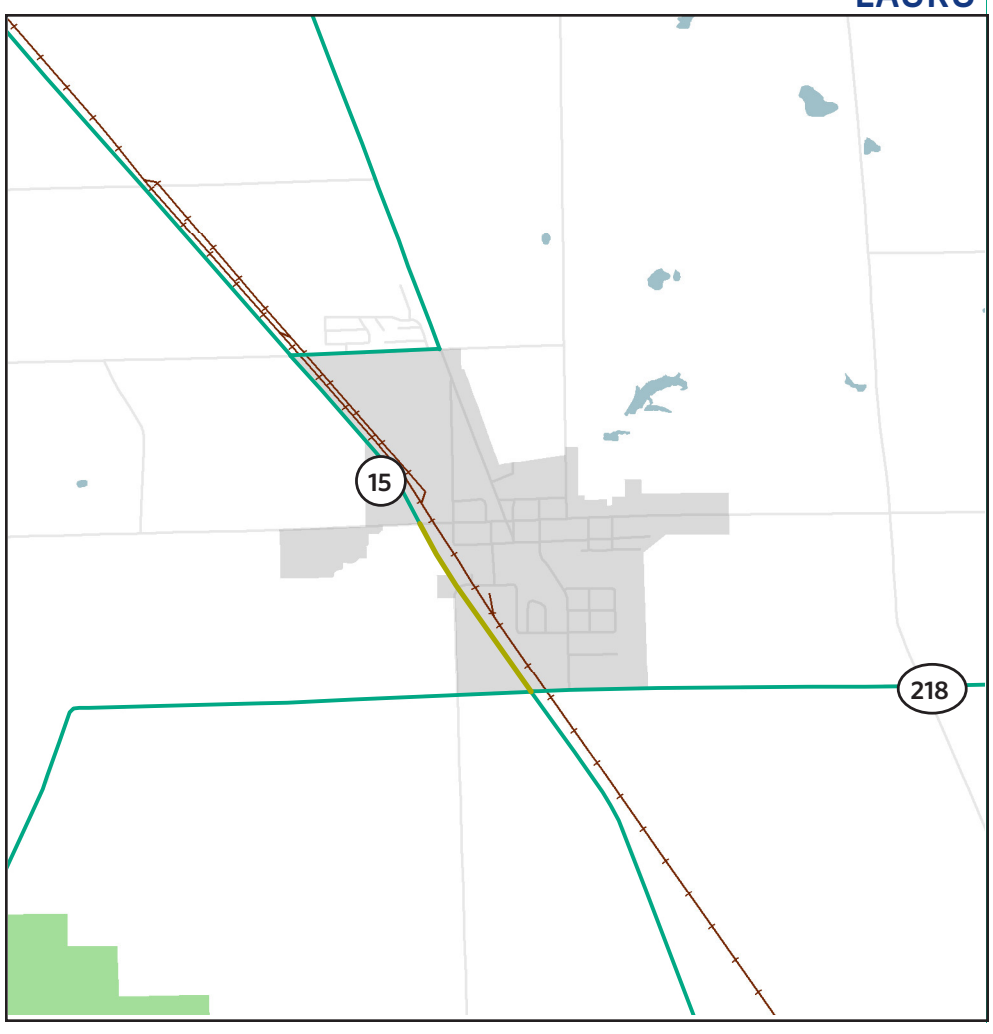
ROANN



WABASH



LAGRO



LA FONTAINE

IMAGINE ONE 85

MAP 4.1 CORRIDOR TRAFFIC

COMMUNITY VIEW

- LOS C or Better
- LOS D
- LOS E
- LOS F

KOSCIUSKO COUNTY

WHITLEY COUNTY

MIAMI COUNTY

HUNTINGTON COUNTY

GRANT COUNTY

LIBERTY MILLS

NORTH MANCHESTER

LAKETON

IJAMSVILLE

SERVIA

ROANN

URBANA

WABASH

LAGRO

RICHVALLEY

WABASH MUNICIPAL AIRPORT

LA FONTAINE

EEL RIVER

WABASH RIVER

SALAMONIE LAKE

MISSISSINEWA LAKE

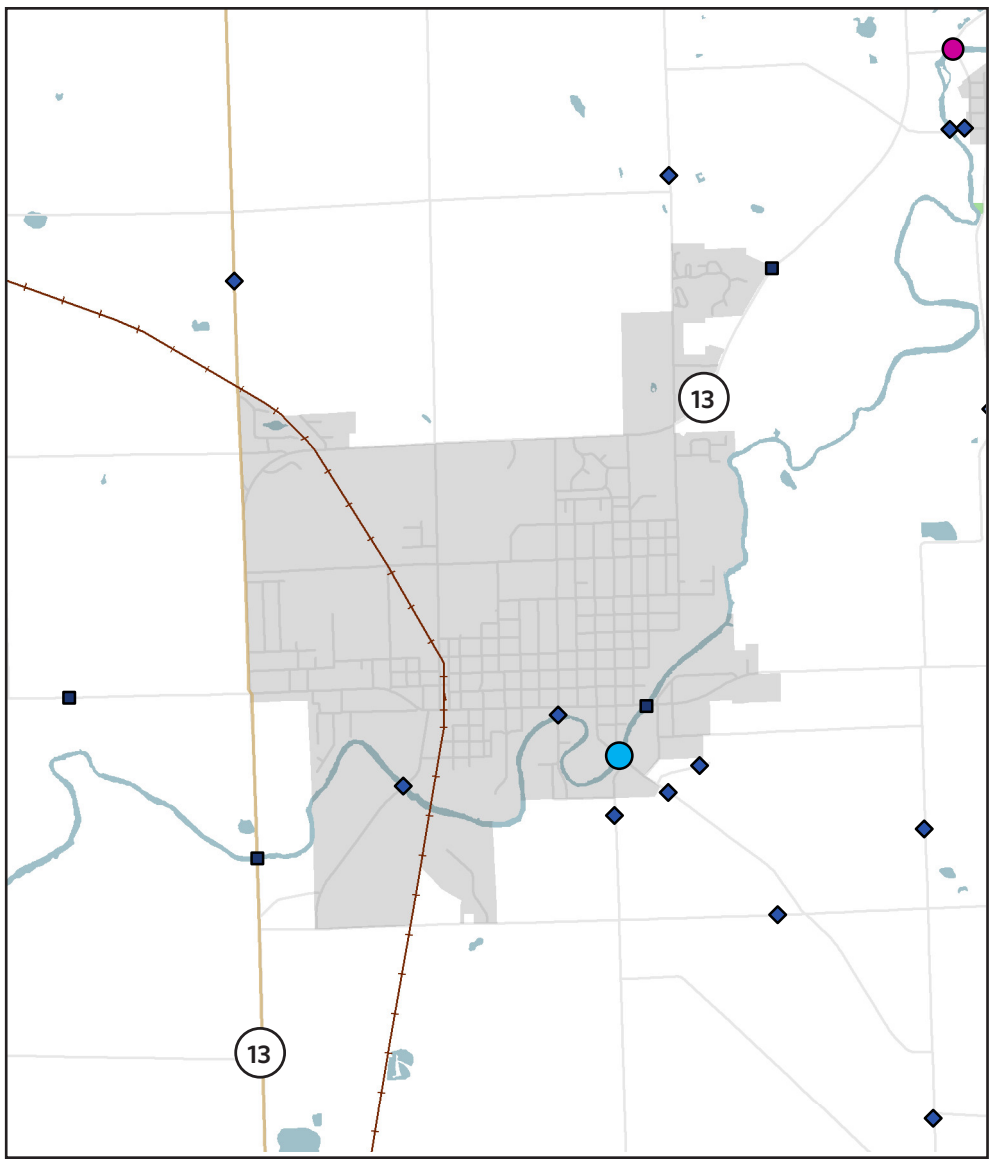
13 15 16 24 113 114 115 124 218

IMAGINE ONE 85

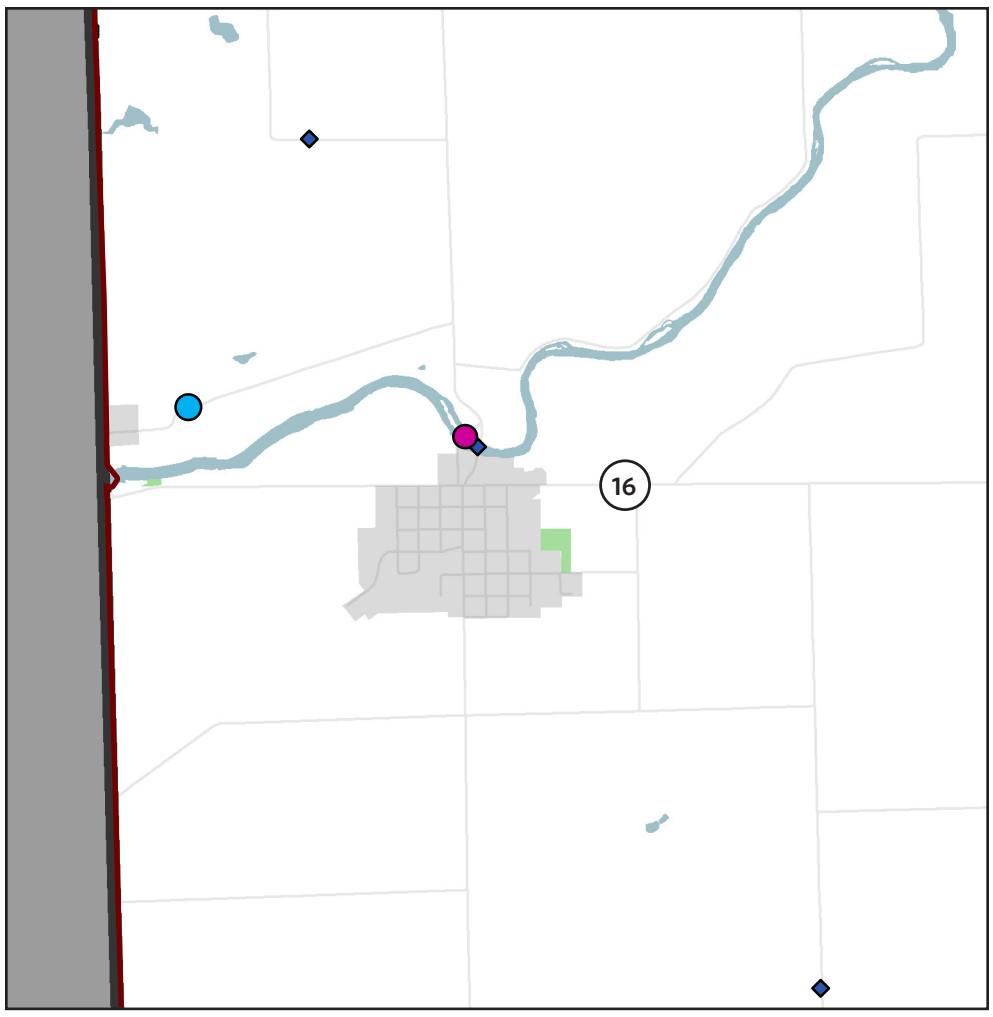
MAP 4.2 BRIDGE CONDITIONS

COUNTYWIDE VIEW

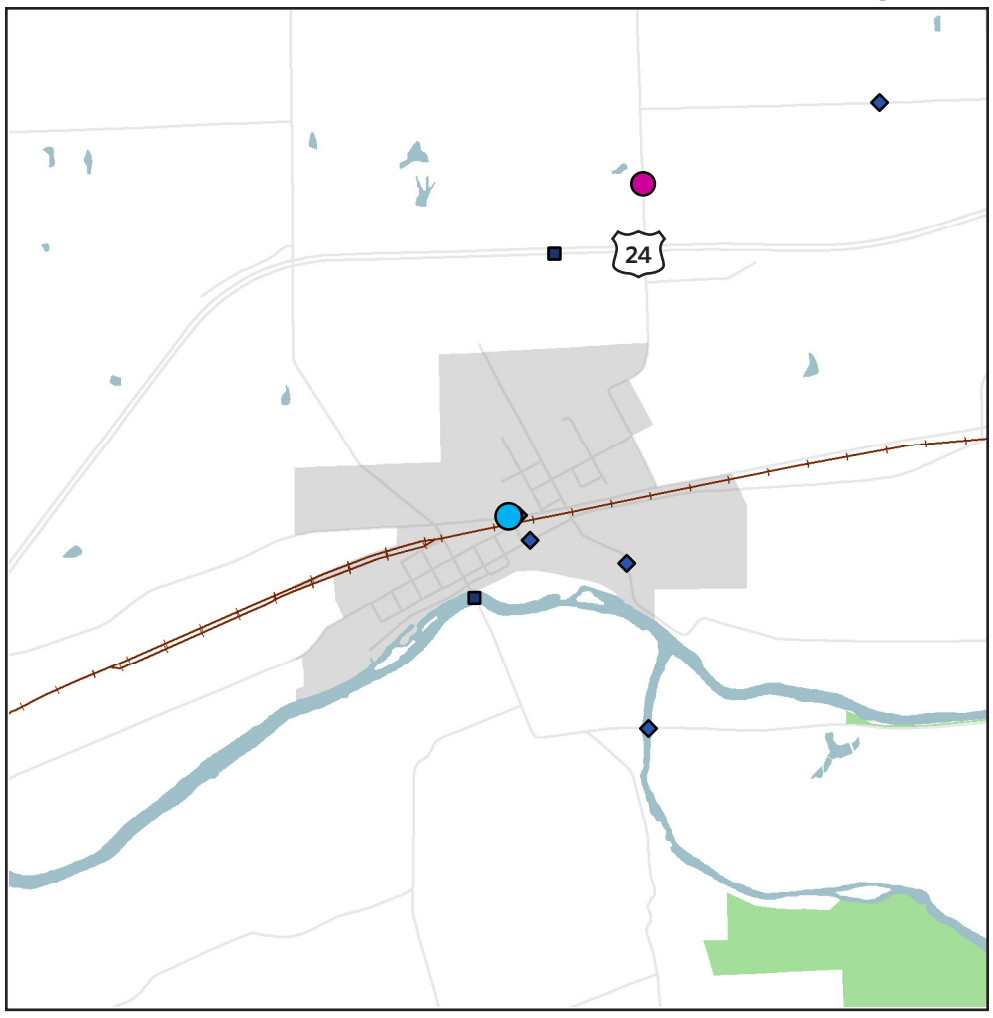
- Functionally Obsolete
- Structurally Deficient
- Acceptable
- Unknown/INDOT Owned
- US Highway
- State Highway
- Wabash County
- Counties
- Railroad
- Water



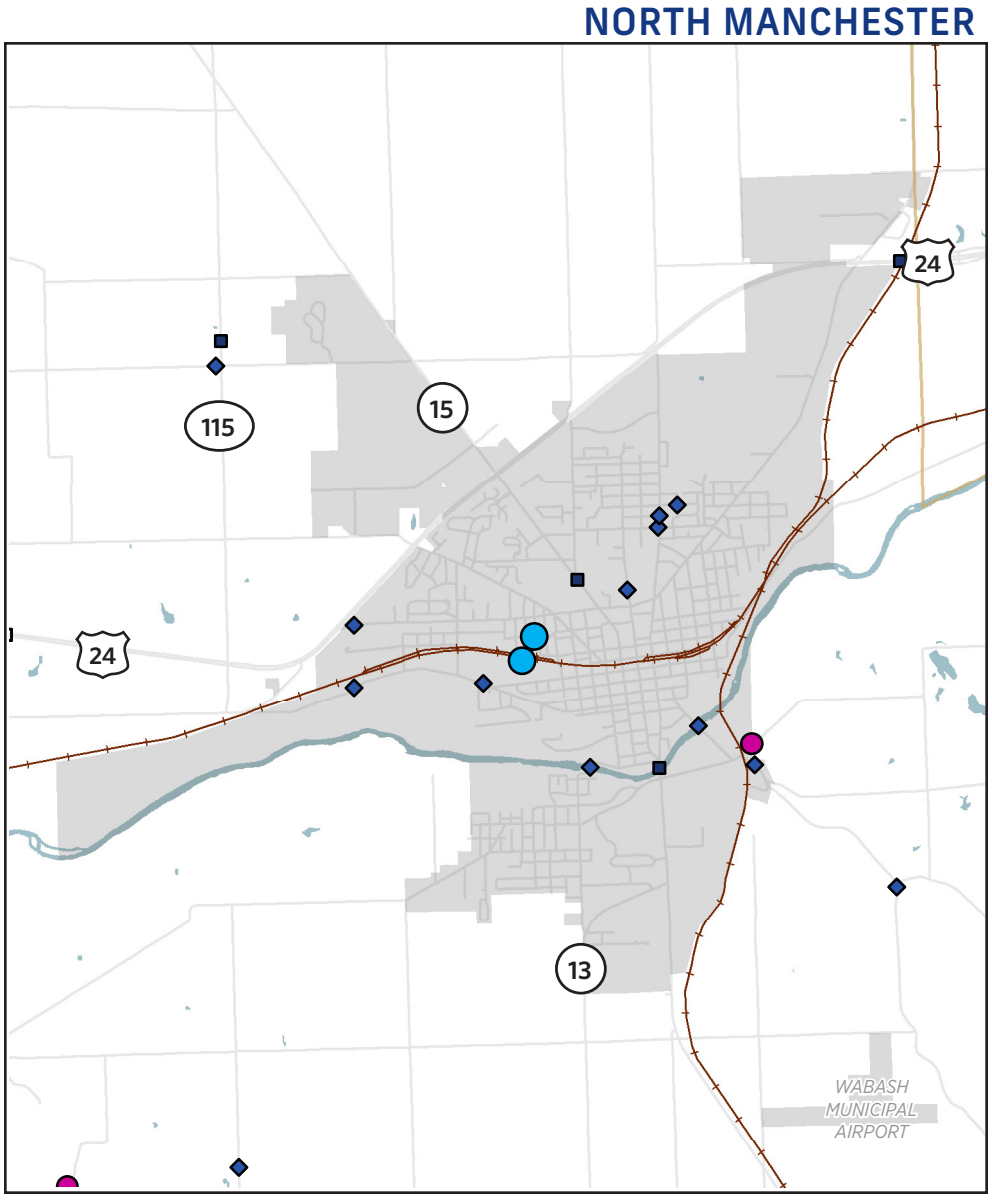
NORTH MANCHESTER



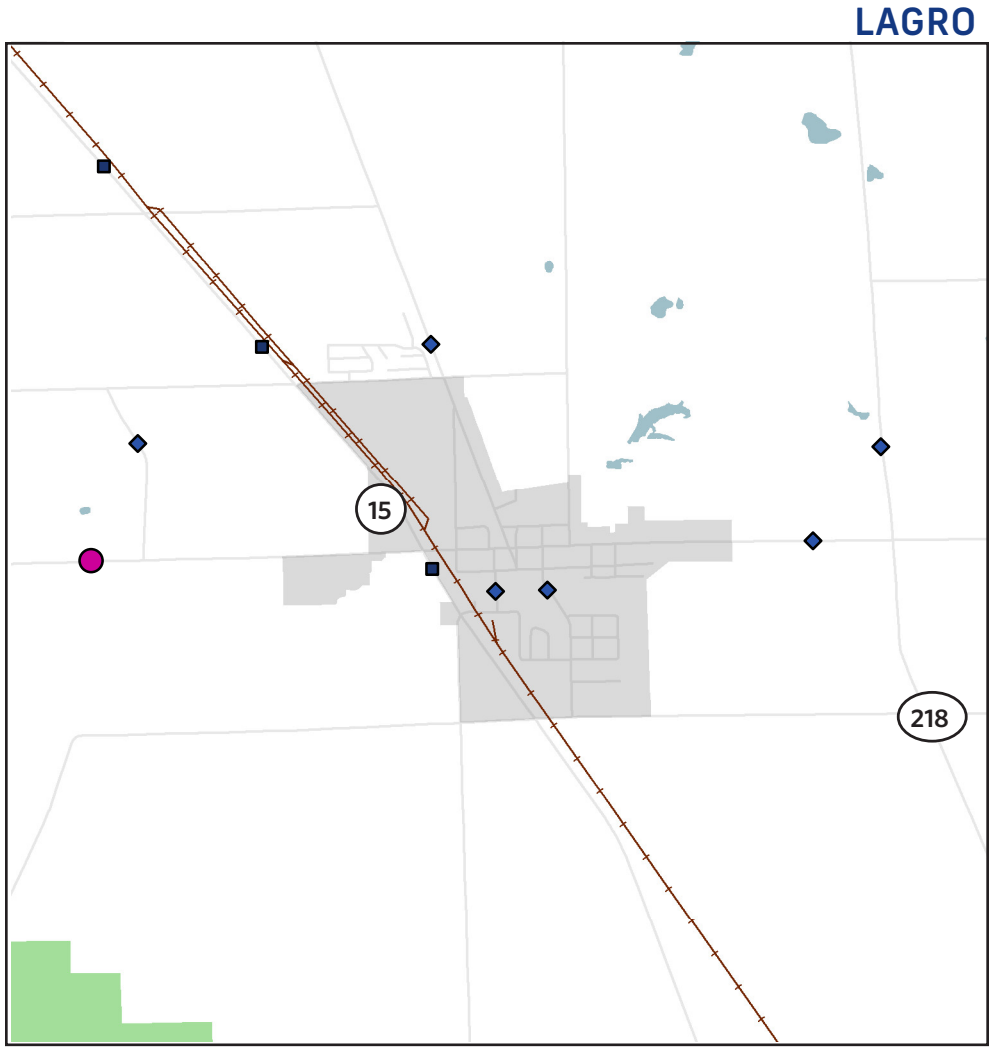
ROANN



LAGRO



WABASH



LA FONTAINE

IMAGINE ONE 85

MAP 4.2 BRIDGE CONDITIONS

COMMUNITY VIEW

- Functionally Obsolete
- Structurally Deficient
- Acceptable
- Unknown/INDOT Owned

KOSCIUSKO COUNTY

WHITLEY COUNTY

MIAMI COUNTY

HUNTINGTON COUNTY

GRANT COUNTY

LIBERTY MILLS

NORTH MANCHESTER

LAKETON

IJAMSVILLE

SERVIA

ROANN

URBANA

WABASH

RICHVALLEY

LAGRO

WABASH MUNICIPAL AIRPORT

SALAMONIE LAKE

MISSISSINEWA LAKE

LA FONTAINE

EEL RIVER

WABASH RIVER

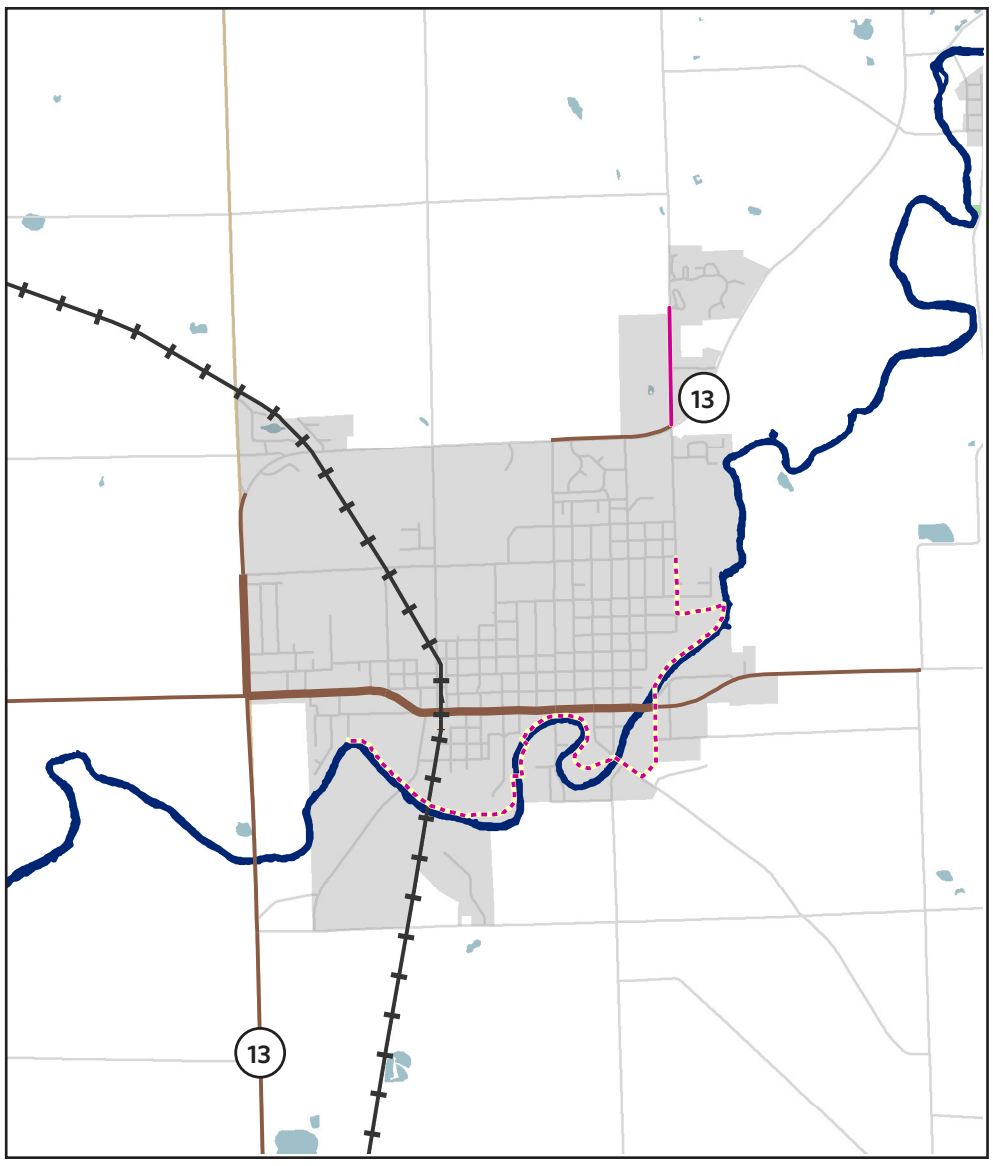
13 15 16 24 113 114 115 124 218

IMAGINE ONE 85

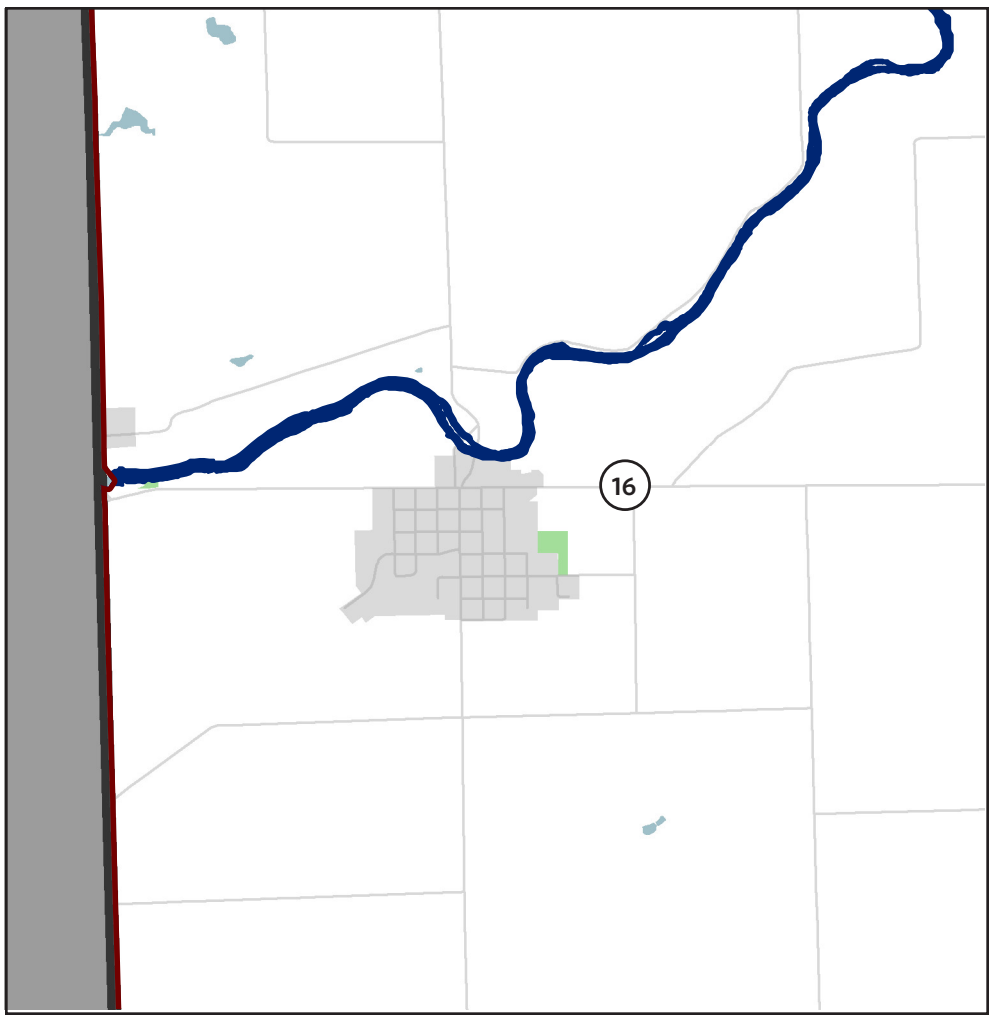
MAP 4.3 WALKING AND BIKING

COUNTYWIDE VIEW

- Shared-Use Trails
- Shared-Use Trails (Planned)
- Park Trails
- Park Trails (Planned)
- Limited Access
- Railroads
- Water
- Moderately Busy Street
- Very Busy Street
- Neighborhood Street
- US Highway
- State Highway
- Wabash County
- Counties



NORTH MANCHESTER



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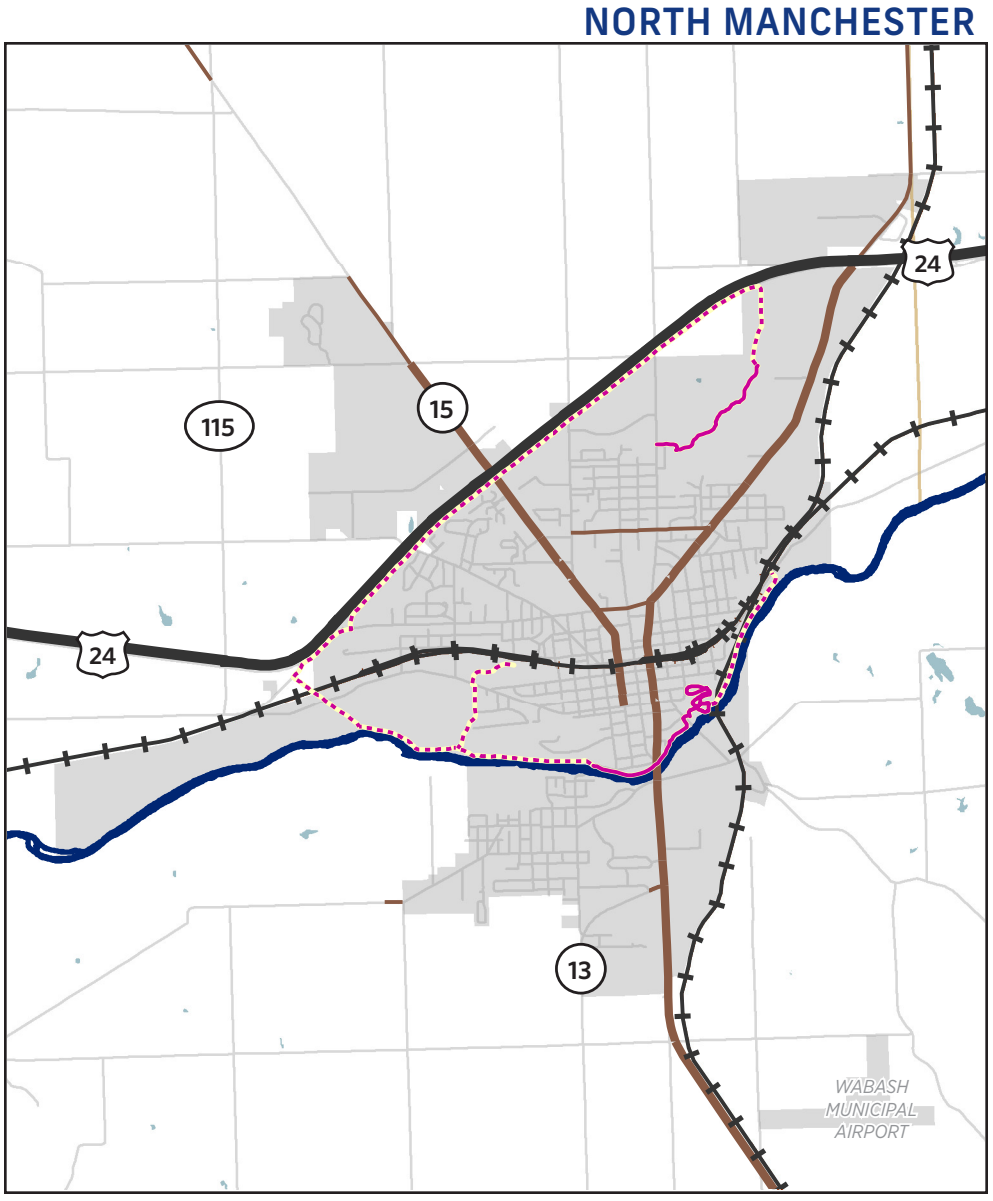

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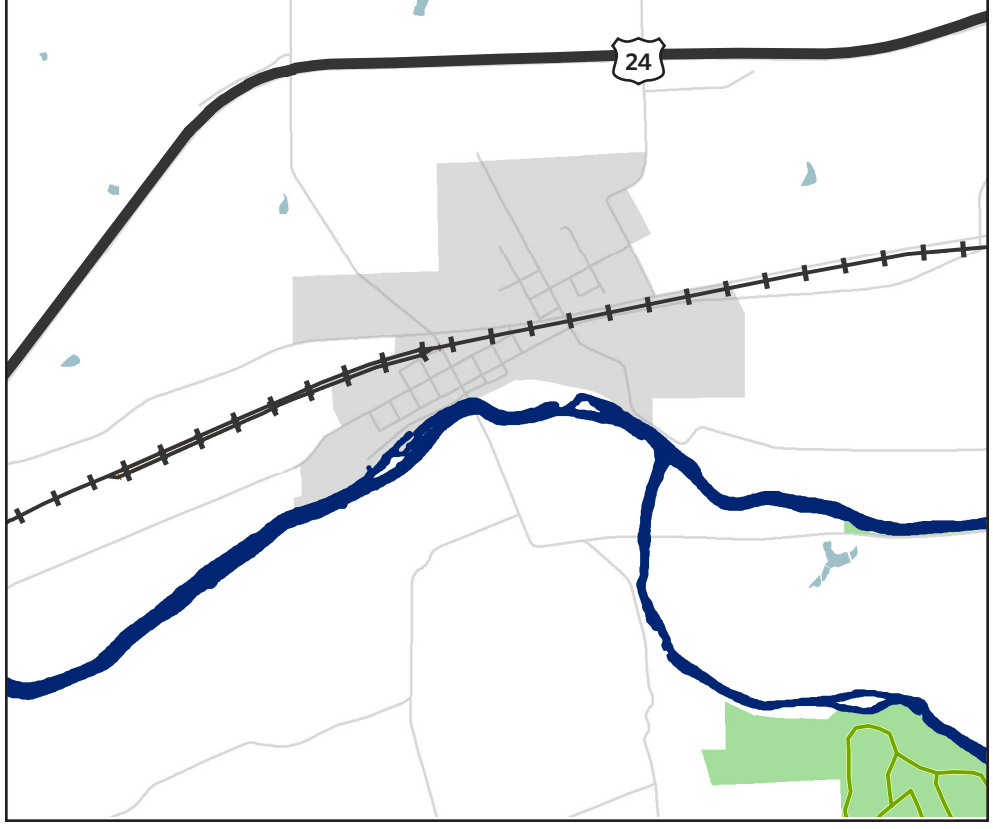

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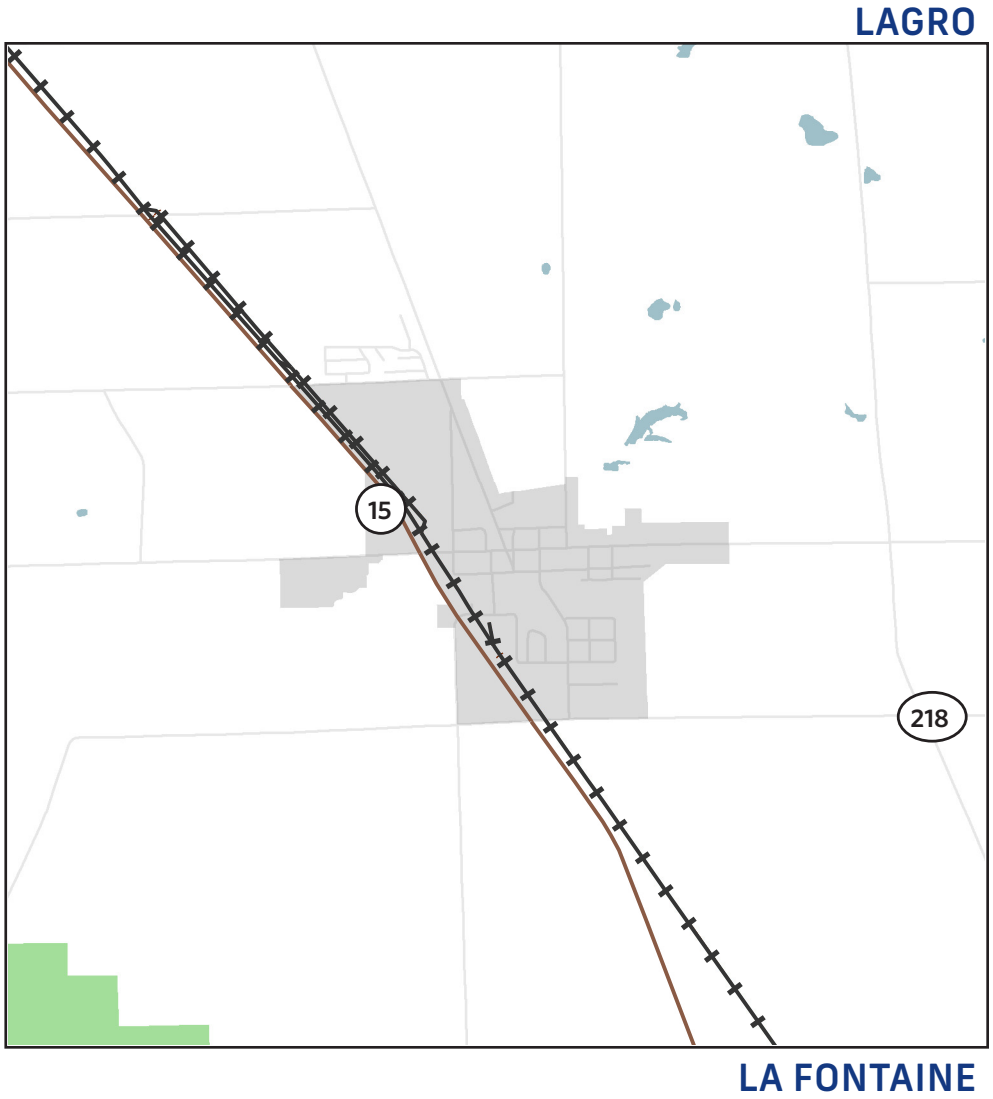

LA FONTAINE

IMAGINE ONE 85

MAP 4.3 WALKING AND BIKING

COMMUNITY VIEW

Parks and Trails

- Shared-Use Trails
- Shared-Use Trails (Planned)
- Park Trails
- Park Trails (Planned)
- Neighborhood Street

Barriers

- Moderately Busy Street
- Very Busy Street
- Water
- Limited Access
- Railroads