FOCUS FORWARD: JASPER

JASPER MULTI-MODAL TRANSPORTATION PLAN

ADOPTED MARCH 17, 2021

CITY OF JASPER INDIANA

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To the City of Jasper Stakeholders:

I am pleased to complete an open action and now include the recently adopted Jasper Multimodal Transportation Plan into our "Impact Jasper" Comprehensive Long-Range Plan. This Transportation plan was needed to address several challenges and opportunities identified during the development of our long-range plan.

1. Need for safe and better connectivity for pedestrians and bicyclists to contribute to the overall enhanced quality of life. This also includes looking at connectivity with other communities.
2. Improvements to the overall roadway network with prioritization of projects to improve safety and flow of traffic in and around our community.
3. Need for safe regional connectivity while considering the growth in the area and the constraints anticipated.

The plan has been delivered by Lochmueller Group after many hours of research, staff meetings and forums to provide public input. The Lochmueller Group took into consideration the possibility of a Mid-States Corridor or by-pass around the city to provide relief to the current environment and the anticipated increase in use of U.S. 231 through the middle of our community. Identifying potential relief by developing new and revising existing routes North to South and East to West gives us options for short-term relief vs the potential a Mid-States Corridor or by-pass may provide as a long-term solution. The recommended route and decision is to be made by INDOT and the Federal Department of Transportation in 2022.

Jasper is a regional economic development hub which draws from neighboring counties on a daily basis for access to medical facilities, jobs, recreation, entertainment, and education. Tourist attractions include the Dubois County Museum, Indiana Baseball Hall of Fame, The Spirit of Jasper Train, the Jasper City Mill, The Parklands, the Sports Complex, Sultans Run and Buffalo Trace Golf Course, The Thyen-Clark Cultural Center, and many historical buildings in the Heart of Jasper. Connectivity to these sites are important to our future.

Our Multimodal Transportation Plan is intended to be a roadmap to prepare for the future. This plan is no different in that it is dynamic and will change over the course of time. However, it is the intent to have a plan that will serve the community for years to come and will guide our decision-making along the way. I am pleased to have this Multimodal Transportation Plan inserted as a component of our "Impact Jasper" Long-Range Comprehensive Plan.

Now, the challenge of executing the plan and revising as needed, must be underway. It must be embraced as a document that drives our decision-making and project prioritization.

Thank you to the residents of Jasper for your input and thoughtful recommendations. It was truly a pleasure to see the engagement of our community in creating this plan.

In service to our community,

Dean Vonderheide

Dean Vonderheide

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How To Read This Plan

The Jasper Multi-modal Plan is the next step to implementing the City of Jasper's long-term commitment to safe streets and a livable community. The Jasper Multi-modal Plan incorporates input from the Jasper Multi-modal Plan Core Committee, Impact Jasper Comprehensive Plan, and insight from community members. The Multi-modal Plan builds on existing plans, namely Impact Jasper Comprehensive Plan and the Jasper Downtown + Riverfront Masterplan.

The success of this plan does not rest in one City department or partner agency. It is a citywide, multi-agency collaborative. The City will focus efforts on City-owned streets while working in tandem with Dubois County and the Indiana Department of Transportation on streets they own. The Jasper Multi-Modal Transportation Plan outlines where the City can make proactive investments, prioritize improvements, and implement policies to improve safety, mobility, and reliability for all residents regardless of age, income, or ability.

Jasper will create a multi-modal community by tackling the challenge from multiple channels at the same time: quick implementation and long-term programming to create the culture shift necessary to make Jasper a community where every resident regardless of age or ability has safe, healthy, and affordable access to their choice of transportation.

This multi-modal plan identifies 21 street and bikeway projects that the City will undertake to provide every resident access to safe and efficient opportunities for biking, walking, and driving. All are important and contribute to shifting our mobility paradigm.

To focus our efforts, the City, its partners, and the community have identified 8 high priority street and bikeway projects for implementation. While the goal is to achieve results by 2040, the priority actions will be the focus of a five-year span from 2021–2026. The City will update the Multi-modal Transportation Plan in the future to guide the initiative as it evolves.

Jasper needs everyones help implementing the Multi-modal Transportation Plan. Residents must make it known that everyone has a right to safe, healthy, and affordable transportation. It is important for the public to bring to light the challenges and barriers to accessing critical destinations, like schools, grocery stores, and parks. Review all the projects, strategies, and metrics and advocate for community transformation.

Important Terms

Traffic
Traffic refers to all modes of transportation. This can include vehicle traffic (cars, trucks, motorcycles), pedestrian traffic, and bicycle traffic. Other referenced terms may include motorized and non-motorized traffic.

Mobility
Mobility in the context of transportation addresses refers to how freely and efficiently traffic and goods can move through the transportation system.

Complete Streets
Complete Streets is a design approach which uses the entire right-of-way to prioritize safety, accessibility, and mobility. These streets accommodate and prioritize safety for all people despite mode choice, age, or disability. There is no single design for a Complete Street. Rather, each Complete Street is designed for of the area's specific conditions and need.

Access
Access describes the physical ease with which people are able to reach their destinations. Access can also refer to the quality and availability of options available to help increase mobility.

Bikeway
A bikeway is a path or route specifically dedicated to bicycles. Bikeways provide a separate path for bikes from other mode options, resulting in a safer experience for cyclists.

Green Infrastructure
Green Infrastructure relies on natural resources such as plants, soils, rocks, and more to promote a resilient and sustainable approach to managing stormwater runoff and drainage impacts. Green Infrastructure includes permeable pavement, green roofs, stormwater harvesting, and more to reduce the amount of water which reaches sewer systems or surface water sources. This process helps to economically restore water management to more natural processes.

Equity
Equity in the context of mobility includes addressing social and spatial disparities in transportation systems. Social factors, including race and income, and spatial components, such as land use and how much street space we dedicate to vulnerable road users, are priorities for ensuring equitable approaches and outcomes on our streets, sidewalks, and bikeways.

Crash (Not Accident)
The term "accident" implies nothing could have been done or nothing at fault to prevent the event from happening. This is rare. Most times, traffic deaths and serious injuries are preventable incidents for which proven solutions exist, and so the preferred term is crashes, not accidents.

Walkshed
A walkshed is the area around any central destination that is reachable on foot for the average person. This is typically measured by 5 or 10 minute walk times. The average person can walk approximately 1/4 of a mile in 5 minutes. An analysis of "walksheds" can help us understand the difficulties of walking to and from central points.

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Executive Summary

Following the adoption of the Impact Jasper Comprehensive Plan in 2019, the City immediately began work to implement one of the plan's primary recommendations-- the completion of a Multi-modal Transportation Plan. This document is a culmination of that effort. The primary objectives of the Multi-modal Plan were to provide the City with the following:

- Develop a list of desired projects including new connections and enhancements to existing infrastructure;
- Provide conceptual route layouts;
- Identify any rights-of-way requirements & environmental concerns;
- Provide probable construction and non-construction costs;
- Identify targeted funding resources at the Local, State or Federal level; and,
- Provide a timeline for planning, design and construction for each project.

The scope of the Plan is comprehensive and includes assessments of roadways, pedestrian and bicycle facilities, and multi-modal connections. The Plan contents are organized around two main topics: The Multi-modal Plan and The Roadway Plan.

Owing to the very robust public engagement process for the recently completed Impact Jasper Comprehensive Plan and with support of the project core committee, strategic engagement was employed in the Multi-modal Transportation Plan. Relevant background data, including public response from Impact Jasper and other studies, served as a baseline for planning and network design. The public was involved during the planning process through a virtual community open house and an online community survey.

The Plan goals reflect community and stakeholder input in combination with overarching Federal and State transportation goals and priorities as well as the community's vision for the future articulated in the Impact Jasper Comprehensive Plan. They involve the following topics:

- Safety
- Mobility
- Reliability
- Livability
- Connectivity

Multi-modal Plan Findings and Recommendations

The Jasper Bicycle Plan encompasses a planning horizon of twenty years (2040). Recommendations consider parameters set by the City of Jasper for staff time and budget. The planning priorities are:

- Safely connecting schools, businesses, and parks
- Traffic calming infrastructure that supports walking, biking and accessibility for people of all ages and abilities
- Education and promotion of walking, biking in Jasper
- Financial responsibility and consideration of multiple funding sources

The priorities guided the selection and prioritization of recommendations in the plan.

Roadway Plan Findings and Recommendations

The Jasper Roadway Plan encompasses a planning horizon of twenty years (2040). The recommendations made for the roadway plan sought to address regional system issues, but also identified intersection-level issues at likely problematic intersections. The capacity analysis showed that several affected intersections will likely continue to work well in the future even with future growth, such as 30th Street and Mill Street, but others will need improvement, such as 36th Street and St. Charles Street.

The safety analysis generally revealed that Access Management is a significant issue along US 231. Implementing a plan to reduce the number of access points will be a long and arduous process. As has been called for in Jasper's Downtown plan and Comprehensive Plan, the downtown core area should be enhanced with complete streets practices to make the area safer for all modes of travel, create renewed attraction between downtown and the riverfront, and generally heighten economic activity.

Implementation

The Bicycle and Roadway Plans sections yielded a total of 21 project recommendations. These projects were prioritized based on their anticipated impact, in combination with stakeholder and public input.

Eight of the 21 projects were selected as high priority projects based on guidance from the consultant team and input from the City Staff. These 8 projects represent priorities for the community, which should be pursued for implementation in the short-term:

- Mill Street from 15th to 36th
- 15th Street Extension to SR 56
- 36th & St. Charles (Convert to roundabout)
- East-West Connector from US 231 to Mill St North of Home Depot
- Main Street from 1st to 9th (Create Complete Street)
- E 6th from Courthouse Square to Mill Street (Create Complete Street)
- US 231 & Baden-Strasse/Walmart (Adjustments to frontage road on west side)
- Phase 1 Multi-modal Network (Complete the Loop)

Twenty-six plan objectives were identified and accompanied a menu of 99 strategies and corresponding performance indicators. Performance indicators are recommended to be used for periodic monitoring to track the community's progress towards achieving the Plan's goals.

As recommendations are implemented and projects come online, improvements in key performance indicators should be realized.

Challenges

This project's challenge is to prepare a multi-modal transportation plan to guide City investments in transportation over the next 20 years. It is a citywide look at capital projects and priorities, and is separate from Operations & Maintenance.

Building on the broad elements identified in the Impact Jasper Comprehensive Plan, this plan focuses on the transportation elements, vetting issues identified in the Comprehensive Plan and diving deeper into other matters such as feasibility of improvements.

For complete details on the existing conditions analysis, see **Appendix A**.

Automobile Dependence

Despite having a mean travel time to work of 15.6 minutes (33% below the state's average), 90% of Jasper commuters drove alone (more than 10% higher than the state's average). With nearly 40% of commuters reporting their travel time to work is 9 minutes or less, there is ample opportunity to promote and use active transportation modes that increase health and reduce congestion.

Jasper

15.6 minutes

Mean travel time to work

Indiana

24.2 minutes

Mean travel time to work

Table 1-1. Means of Transportation to Work (2019: ACS 5-Year Estimates Detailed Tables)

	Jasper	Indiana
Drove Alone	89%	83%
Carpooled	5%	9%
Public Transit	0%	1%
Bicycle	<1%	<1%
Walked	1%	2%
Other	<1%	1%
Worked at home	4%	4%

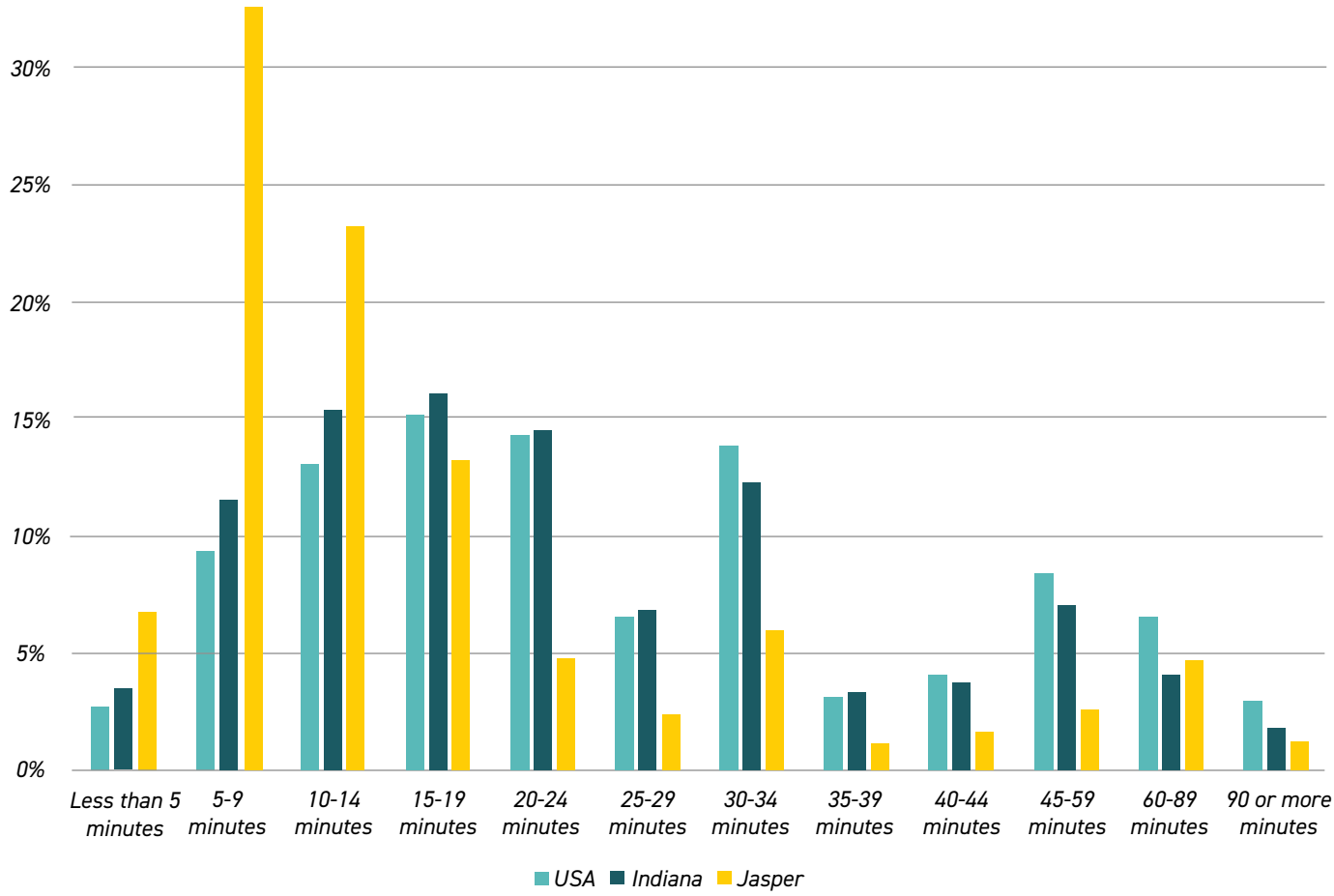


Figure 1-1. Travel Time to Work for City of Jasper, State of Indiana, and United States (2019: ACS 5-Year Estimates Detailed Tables)

Access to Alternatives

Public transit service is not offered in Jasper. Residents who do not have access to a car or are unable to drive due to age or disability must rely on friends, family, taxi services, walking or biking.

According to the US Census, approximately 5% of Jasper residents do not own a car. Additionally, 11.3% of Jasper residents report having a disability which may prevent them from operating an automobile. With the addition of children under 16 who cannot legally drive, as many as 1/3 of Jasper's population does not have the option to drive a car.

According to GIS analysis, currently 28% of Jasper is located within 1/4 mile walkshed of trails. This means that over half of Jasper residents do not have safe and convenient access to walking and biking facilities near their home.

Vehicles at Home

4.9

percent

No vehicle at home

Disability

11.3%

percent

Population with a Disability

Table 1-2. Poverty Status By Age

	Jasper	Indiana
Under 5 years	0%	22.6%
5 to 17 years	29.1%	18.7%
18 to 34 years	13.6%	18.9%
35 to 64	10.0%	10.5%
65 and over	3.7%	7.5%

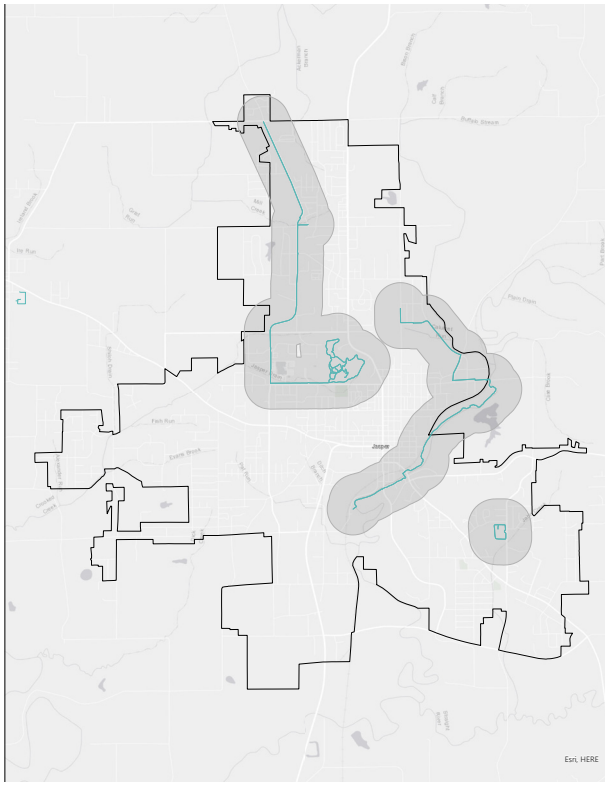


Figure 1-2: Walkshed of Existing Bikeways

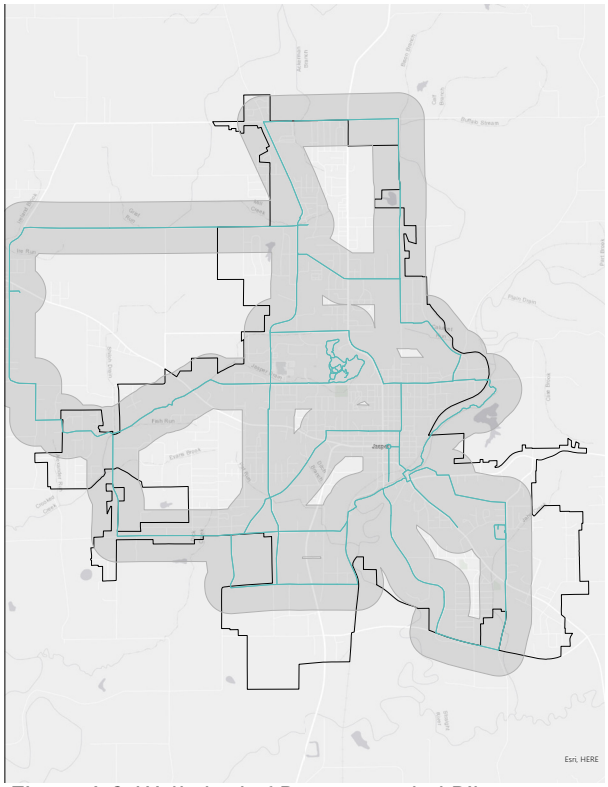


Figure 1-3: Walkshed of Recommended Bikeways

Safety

Transportation safety performance is linked to a variety of elements, including roadway design, traffic law enforcement, road user behavior, and emergency response time. Therefore, effective transportation safety warrants a multidisciplinary approach. Traffic deaths and serious injuries involve a variety of contributing factors and happen throughout Jasper. Factors such as vehicle speed and dangerous driving behaviors, like disregarding stop lights, distracted driving, and impaired driving, play a large role in fatalities and serious injuries. Socially vulnerable communities have a higher number of traffic deaths and serious injuries per resident compared to less vulnerable communities. The City of Jasper averages 660 crashes annually. Overall, the frequency of crashes in Jasper is trending downward, and yet 3 people have died and 343 were injured due to crashes in the past five years. Many of the crashes occurring in the city are located along the major corridors of US 231, SR 164, and SR 56.

Traffic deaths and serious injuries are avoidable. By implementing best practices in engineering, traffic enforcement, education, and emergency medical services, Jasper can create a create a safe, accessible transportation network where people feel they belong.

Injuries

343
Crashes
Resulting in injury

Fatalities

3
Crashes
Resulting in fatality

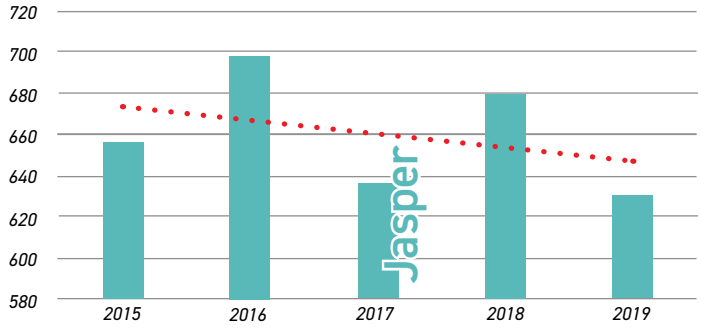


Figure 1-3. Total Annual Crashes Reported (2015-2019)

Table 1-3. Collisions by Type (2015-2019)

	2015	2016	2017	2018	2019	Total
BACKING CRASH	146	162	156	150	159	**773**
REAR END	146	165	152	141	155	**759**
RIGHT ANGLE	100	114	103	96	88	**501**
OTHER - EXPLAIN IN NARRATIVE	57	81	54	92	53	**337**
SAME DIRECTION SIDESWIPE	42	40	53	52	48	**235**
RAN OFF ROAD	43	53	54	41	43	**234**
COLLISION WITH DEER	35	25	--	32	21	**113**
LEFT TURN	24	15	20	26	13	**98**
OPPOSITE DIRECTION SIDESWIPE	15	9	15	12	14	**65**
HEAD ON BETWEEN TWO MOTOR VEHICLES	15	7	9	11	9	**51**
RIGHT TURN	9	6	11	8	7	**41**
COLLISION WITH OBJECT IN ROAD	6	5	5	6	4	**26**
LEFT/RIGHT TURN	6	6	2	7	4	**25**
NON-COLLISION	7	3	--	1	6	**17**
COLLISION WITH ANIMAL OTHER	4	3	--	3	4	**14**
REAR TO REAR	--	1	1	--	--	**2**
GRAND TOTAL	**656**	**697**	**637**	**680**	**631**	**3301**

Goals

We will improve the mobility for Jasper residents regardless of age, income, or ability by focusing on these primary goals:

Safety:

Create a safe transportation system that strives to end traffic deaths and prevent serious injuries.

Mobility:

Create an equitable transportation network that provides all residents access to mobility choices that are affordable, safe, and efficient.

Reliability:

Ensure that the transportation system is reliable, efficient, and well maintained.

Livability:

Encourage transportation solutions that promote community health, economic activity, and ecosystem vitality.

Connectivity:

Provide a transportation network that connects neighborhoods to places of employment, education, goods, and services.

How do we improve mobility?

Enhancing mobility and transportation options bring many benefits to a city. Reduced traffic congestion, shorter trip times, improved public safety and less pollution are just a few. This collection of strategies are just a few of the tools and best practices traffic engineers and transportation planners use to enhance urban mobility.

Access management

Providing adequate access management helps to improve safety while reducing congestion along roads and preserving public roadways. By properly managing access, drivers are still able to reach their destinations with fewer turn choices and fewer slow-downs, alleviating frustration. This not only improves traffic congestion and vehicle speeds, but it also improves pedestrian safety and mobility as they encounter fewer conflicts with vehicles. Both vehicles and pedestrians experience improved mobility through less frequent stops and safer connections to destinations.

Connecting land use and transportation solutions

By connecting land use and transportation solutions, access to destinations can be improved to provide more efficient mobility throughout the system. By providing targeted transportation solutions for a specific land use, mobility will be improved because specific transportation solutions and opportunities, such as the availability of public transportation between residential and industrial uses, will be available for the coordinated land use. This will allow people to reach their desired destinations more freely.

Coordination with state and local agencies

Coordination between state and local agencies is necessary to align project priorities and funding. Projects with a focus on mobility can be prioritized through both a state and local level to improve the project's outcome and increase mobility throughout the transportation network.

Interparcel access/Cross Access Agreement

Interparcel access and cross access agreements allow for improved ingress and egress throughout a transportation network. By creating better cross access, the mobility of a network is improved because people will have more connectivity and will be able to reach their destinations with more ease.

Connectivity Index

A connectivity index provides a way to quantify the connectivity of a transportation network. If a transportation network is well connected and people are able to freely move throughout the network, then the connectivity index will score highly. A high connectivity index indicates a high mobility within the transportation network as people are able to reach their destinations with ease.

Estimating future demand

The future demand of a transportation system indicates where future projects and funding may be needed. By addressing and accommodating for future demand, areas requiring more mobility can be addressed early and connections to future demand areas can be provided.

Bicycle Plan

Fostering and investing in a safe and efficient multi-modal transportation system is crucial to creating a bike friendly Jasper. A well-connected high quality multi-modal network encourages active living and is also important for developing healthy neighborhoods, improving equity, increasing access to affordable transportation options, and enhancing recreational opportunities.

The priorities of the plan were created with the help of subject matter experts and the City Staff, to ensure the priorities fit residents' needs, while staying within City resources (see **Appendix D**).

The Jasper Bicycle Plan encompasses a planning horizon of twenty years (2040), and follows the generally accepted "Five E's" of bicycle planning as outlined by the League of American Bicyclists:

1. Education
2. Ecouragement
3. Equity, Diversity, & Inclusion
4. Engineering
5. Evaluation

Recommendations consider parameters set by the City of Jasper for staff time and budget. The planning priorities are:

- Safely connecting schools, businesses, and parks
- Traffic calming infrastructure that supports walking, biking and accessibility for people of all ages and abilities
- Education and promotion of walking, biking, and greenspace in Jasper
- Financial responsibility and consideration of multiple funding sources

The priorities guided the selection and prioritization of recommendations in the plan.

The following recommendations on education, encouragement, and equity were based on the third and fourth priorities. The first, second, and fourth priorities formed the basis of the prioritization process for the walking and biking infrastructure recommendations.

Education

Education on traffic law and safety helps residents of all ages share the road, whether they are biking, walking, or driving. For people interested in bicycling, education on best commuting routes or on-road cycling can help them make bicycling a habit. For pedestrians, it is important to understand how to walk safely, including children walking to and from school. For drivers, proper education includes full understanding of bicycle markings and rules of the road when it comes to non-motorized travel.

Recommended Programs

Safety literature for all roadway users

In order to share the roads safely, pedestrians, cyclists and drivers must understand the laws and statutes at the local and state level. Distributing safety literature at civic buildings, recreational centers, local shops, or even as a law enforcement warning, helps the public learn about traffic laws in a cost-effective way. Safety literature should be easy to read, concise, and visually appealing in order to reach the widest audience possible. The City can also increase awareness of bicycle safety by sharing online education, such as the League of American Bicyclist's Bike Safety Quiz (http://www.bikesafetyquiz.com/). A Bicycle Resource Guide and education literature can be ordered for free from Bicycle Indiana: https://www.bicycleindiana.org/.

Online Resources:
• RAGBRAI Ride Right Coloring Book: https://ragbrai.com/wp-content/uploads/2009/09/RideRightBook2013.pdf

Education in schools

It is important to encourage children to walk and bike to school safely and educate parents, school district staff on the benefits of walking and bicycling to school. Biking and walking education in schools is the most effective way to teach children how to use the roads safely. In Jasper, as many children live within walking and bicycling distance to school, education will help students to improve their own safety and get exercise.

Lessons incorporated into the classroom will reach all students. These lessons can also be effective at reaching parents, who are the ones driving to and near schools. Typically, biking and walking education is incorporated into Physical Education courses. Several model curricula are available online through the Safe Routes to School National Partnership (https://www.saferoutespartnership.org/state/best practices/curriculum). The national Safe Routes to School program is a major resource for biking and walking programming in schools. It was founded to educate children on safety and to encourage families to incorporate physical activity into their daily routines. Programs that help children to walk and bike safely include Walking School Buses, Bike Trains, Bicycle Rodeos, National Walk to School Day, and Safe Routes to School walking maps.

Resources

- National Center for Safe Routes to School: http://www.saferoutesinfo.org/
- FHWA Safe Routes to School: https://www.fhwa.dot.gov/environment/safe_routes_to_school/

Bicycle education classes

It is important to encourage safe and confident biking by providing education to residents in Jasper. Though most adults know how to drive a car, they have never learned the rules of the road in terms of biking. The proper knowledge and skills make biking safer, more relaxed, and more enjoyable. Bicycle education courses can be organized through the City or through community organizations, such as churches. In addition to the fee for hiring an instructor, a bicycle education course typically requires meeting space for 3 hours and access to an empty parking lot.

There are several trained bicycle safety instructors in Indiana. It is also possible for a Jasper staff person to become a trained instructor by attending a three-day workshop. Workshops are periodically held in throughout the state. League Certified Instructors can be found here: https://bikeleague.org/bfa/search/map/Indiana?bfaq=Indiana.

Encouragement

Encouragement allows residents to share in the joy of biking and walking. Creating a safe and positive environment for residents to try out active transportation is a powerful tool in becoming more bikeable and walkable. The following programs are recommendations based on the responses in the community survey, along with national best practices for encouraging walking and biking.

Recommended Programs

Active transportation rewards programs

Working with local businesses to offer rewards for those who arrive on foot or by bike can be a great way to promote local businesses and active transportation. Bicycling incentives are common in communities throughout the country. For example, businesses can reward those who have a helmet to show they biked. As it's more difficult to prove that a customer arrived on foot, walking incentives are more rare. A few ways to incentivize walking and biking to local retail include:

- Retailers offer specific rewards to those who arrive by bicycle. Usually, the incentive is small, like a 5% discount at a restaurant, or a free upgrade on drink size at a café. Individual retailers can opt to offer bicycle incentives and choose to promote them on their own or work with other businesses.
- Retailers coordinate to offer rewards on a specific day. The Bike Friendly Business program in Peoria, Illinois is an example of coordination among businesses and the local bicycle advocacy group to promote local shops and restaurants, while encouraging people to bicycle, and reduce parking demand. Participating businesses put a sticker on their helmet and receive recognition on the Bike Peoria website. In return, they agree to offer discounts or incentives, like a free soft drink at a restaurant, to cyclists on Saturdays. A similar program could encourage residents to try bicycling, and it can also encourage them to explore local businesses.
- Work with local businesses to encourage them to become certified Bicycle Friendly Businesses through the League of American Bicyclists. This program will help them identify ways to better serve cyclists, including by providing bicycle parking, or places for cyclists to store their helmets.

Community walks and rides

Community rides and walks encourage residents to be active and get to know each other in a friendly and supportive environment. Community rides or walks help residents to discover the joy of being active and help strengthen community. Events have designated routes, typically loops, which end at the starting place. The pace should be accessible for all participants. Organizing a community ride or walk is a great way to get volunteers involved in promoting walking and biking, while building community support. Community rides can also be an opportunity for partnership.

Walking and biking maps

Being able to safely get around the city will help encourage more people to bike and walk. The creation of a walking and biking transportation map will help residents understand the best routes and how to access city destinations such as schools, library, and the business district by walking, biking, or taking transit. As part of the planning process, walking and biking maps will be created.

National Bike Month activities

National Bike Month is in May. The City can encourage residents and employees of all ages to bike in and around Jasper for transportation and recreational purposes during National Bike Month. Jasper can participate in National Bike To Work Day, by working with a local café that is interested in hosting a Bike To Work Day Station.

Other common events include family group rides, adult and children cycling classes, and bike-to-school days. The League of American Bicyclists has a number of valuable online resources to help make local efforts successful, including an event organizing handbook, a calendar linking to local events and activities, and tips for people interested in commuting to work.

Resources

League of American Bicyclists
The League of American Bicyclists is the oldest bicycling organization in the US. It works through its members to promote better education and better facilities for bicyclists. Hosts the annual National Bike Summit.
https://bikeleague.org/

Advocacy Advance Program
A partnership between the League of American Bicyclists and the Alliance for Biking and Walking. Includes research and policy reports on rumble strips, highway safety programs, bicycling and climate change, and other topics.
https://www.advocacyadvance.org/

Ped Bike Info
Ped Bike Info provides several ideas for promoting walking, including examples of successful programs. http://www.pedbikeinfo.org/resources/resources_details.cfm?id=4916.

Equity

The Five E's of bicycle planning generally originate from guidance provided by the League of American Bicyclists. Effective June 9, 2020, the "Enforcement & Safety" section of the Bike Friendly Community application was taken offline to allow the League to assess all Enforcement-related questions and begin to determine how the program can best contribute to policy and cultural changes that reduce the potential for police violence and discriminatory enforcement.

In August, the League of American Bicyclist re-published an updated version of the application with key changes that fundamentally shifted how enforcement is framed in those applications. Some enforcement-related questions remained offline while the majority were revised and integrated into other sections of the applications.

In October, the League announced that these changes were to become official, including the permanent removal of "Enforcement" as its own pillar within the 5 E's Framework. Over the coming year, the League will determine what further changes are needed. To truly achieve the vision of a Bicycle Friendly America for everyone, Equity, Diversity & Inclusion (EDI) are the essential lenses through which all other elements must be viewed.

Throughout the E's and in every Bike Friendly program application, communities will find EDI-focused questions and multiple choice answer options that are designed to help applicants consider the ways in which they can address and correct for historical disparities and systemic inequities across each of the other E's.

Engineering

Multi-modal transportation networks increase quality of life for all residents. They provide safer and more accessible routes to key destinations, improve equitable transportation for all income levels, and promote active lifestyles by accommodating non-motor vehicle-oriented travel.

The desired outcome of any improvements or additions to a multi-modal network is to improve safety, convenience, and accessibility for all ages and all mobilities. Achieving this outcome involves two types of efforts; separating motor vehicle traffic from those walking or bicycling, and slowing motor vehicle traffic so speeds are compatible with walking and cycling speeds.

The proposed walking and biking networks are presented in prioritized maps and tables on the following pages. Prioritization provides a framework for phased implementation, given constrained resources. The prioritization is based on community preferences, feasibility, and impact. The prioritization methods emphasize creating a network for walking and biking to community destinations.

If the opportunity to implement a project arises before the proposed phase, the phasing schedule should not prevent it from being implemented. Recommendations that require re-striping should be implemented when roads are scheduled to be repaved and painted. Likewise, shared lane markings should not be added when a street is scheduled to be repaved in the next year. Ultimately, the recommendations should be balanced by the City Engineer to ensure coordination with planned maintenance schedules.

Recommended Routes

The exact route and alignment of each of the specific routes identified on the Recommended Multi-modal Facilities Map have not been determined. Land acquisition has not been studied. Therefore, suggestions for funding, implementing, and prioritizing of the proposed facilities contained herein are recommendations.

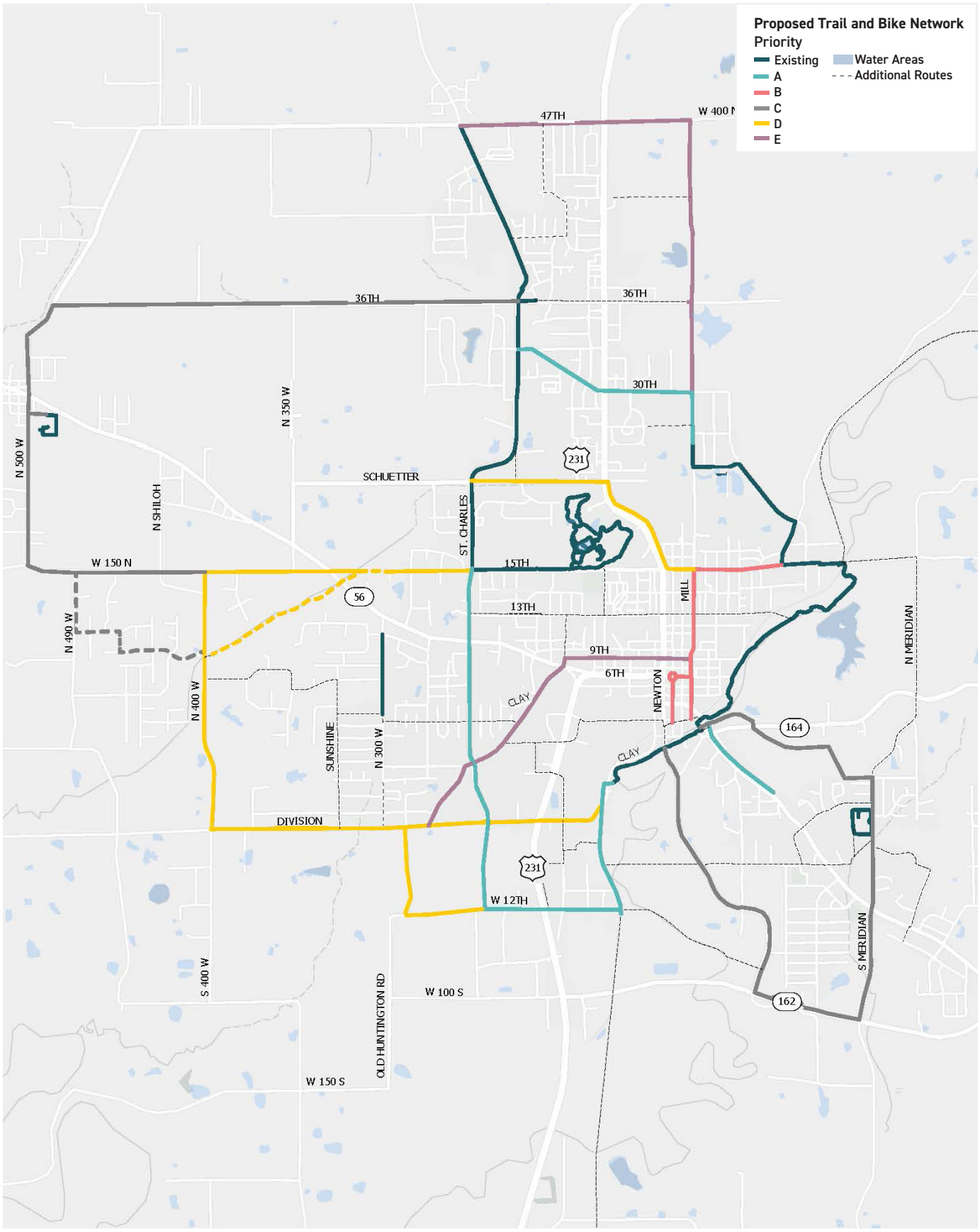
The recommendations are based on national practices, information relevant to the project and recent experience with construction and funding of similar project types. The City of Jasper should continue to evaluate the priorities as opportunities for funding become available. When considering these opportunities some general priorities should be considered.

Map 1-1 on the following page displays the recommended priority bicycle network for the City of Jasper. In addition to the priority recommended routes, the project team identified additional bikeway opportunities, shown as dashed lines, on low stress roadways within the city that would be good candidates for shared roadway or visually separated facilities.

General priorities are recommended for implementation of the master plan as follows:

- ***Proposed facilities on publicly owned land:*** Access to the land where the facilities are planned, either through fee simple ownership or through easement rights is critical to implementation. Facilities that are proposed on publicly owned land such as parks or in conjunction with public rights-of-way should be given high priority.
- ***Proposed facilities associated with other public or private improvements:*** Planned improvements to land or along corridors where facilities are planned often provide opportunities for implementation. As plans are developed by the City of Jasper or the Indiana Department of Transportation (INDOT) for road improvements where a bicycle and pedestrian facility is proposed, coordination should occur to incorporate these new facilities into those improvements. Opportunities might also exist when private development occurs through coordination with the developers and the Planning and Zoning process.
- ***Expansion of existing system:*** Proposed trail segments which close a gap to complete existing links between neighborhoods and key destinations shall be given higher priority. Filling in these gaps will provide the maximum benefit to a greater number of existing users with minimal financial commitment.
- ***Source of funding:*** As funding becomes available which is most applicable to a particular project those projects will receive priority.
- ***Increase safety for alternative modes of travel:*** Projects which provide safe use for all users including people traveling along and across roadways, railways, waterways, and other barriers shall receive higher priority.
- ***Ease of construction:*** Projects where construction of the project is considered to be simple and easy to build according to criteria such as costs and design constraints such as grading and drainage and structures required for the project shall receive higher priority.

These general priorities should be considered as guidelines, with opportunity playing a major role in determining actual implementation of the facilities within the system. Opportunity can come in many forms including the funding source (i.e. grant, dedication of land, endowment, etc.) and the timing of related projects (both public and private). These opportunities may open the door for implementation of a specific facility that might have been lower on the priority list contained herein.



Map 1-1. Recommended Multi-modal Facilities

Phase 1: Complete the Loop

N
Not to Scale

DESTINATIONS

- Jasper Engines
- Kimball Electronics
- The Schnitzelbank
- Jasper High School
- Jasper Rubber Products
- Meyer Distributing
- Holy Trinity School
- Jasper Elementary and Jasper Middle Schools
- Masterbrand Cabinets
- Ruler Foods
- Dubois County Museum

ESTIMATED COST

Segment 1.1

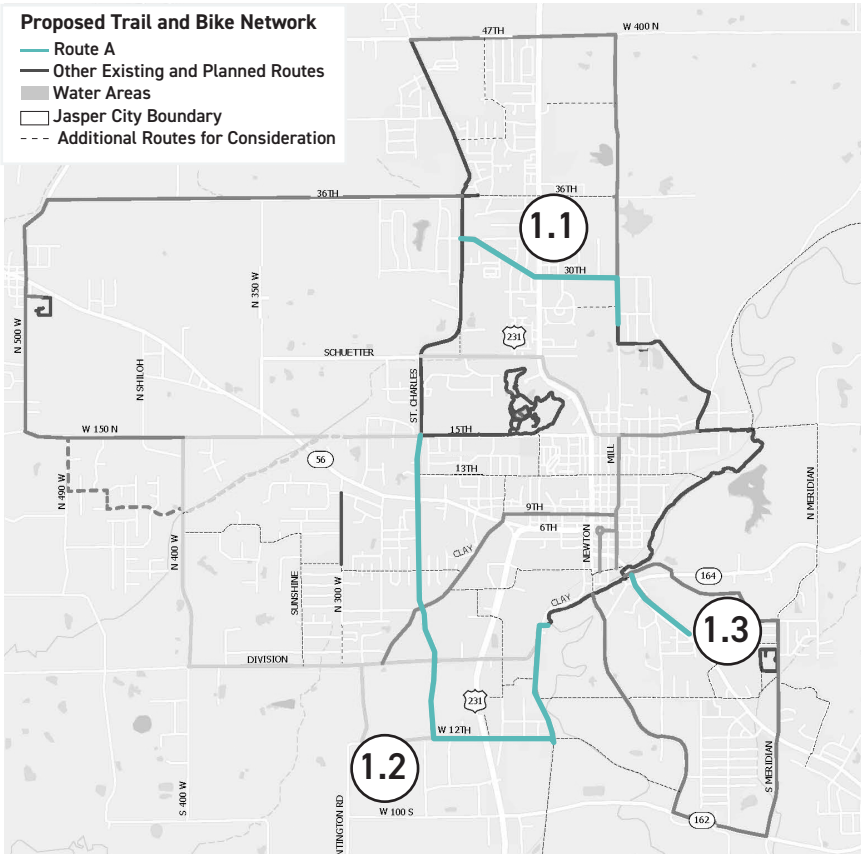
Estimated Cost: $300,000-680,000

Segment 1.2

Estimated Cost: $1,700,000

Segment 1.3

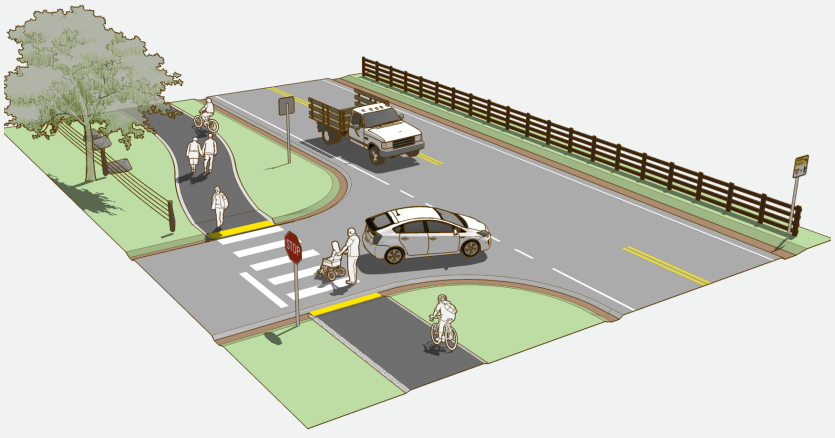
Estimated Cost: $100,000



Map 1-2. Phase 1

PRIMARY FACILITY TYPE

Shared Use Path: Off-Road, Physically Separated



SECONDARY FACILITY TYPE

Bicycle Lane: On-Road, Visually Separated

Phase 2: Connect the Core

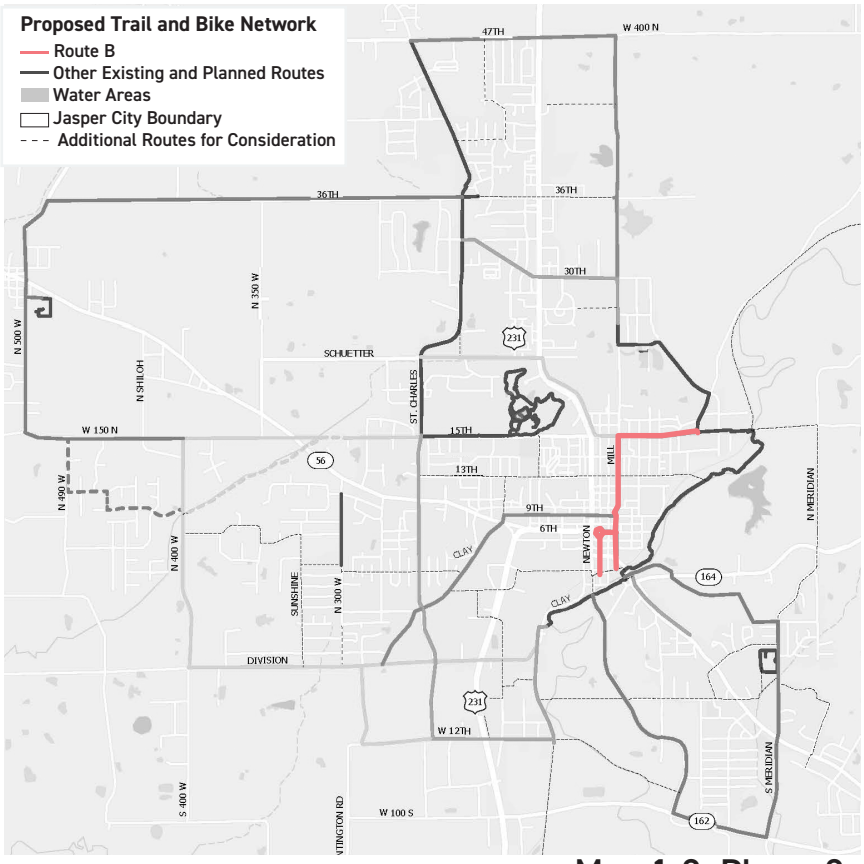
N
Not to Scale

DESTINATIONS

- Jasper City Hall
- Jasper Public Library
- Thyen-Clark Cultural Center
- Courthouse Square
- Masterbrand Cabinets
- Astra Theatre
- Kimball International
- Jasper City Mill
- River Centre
- Jasper River Walk
- Jasper Police and Fire Departments

ESTIMATED COST

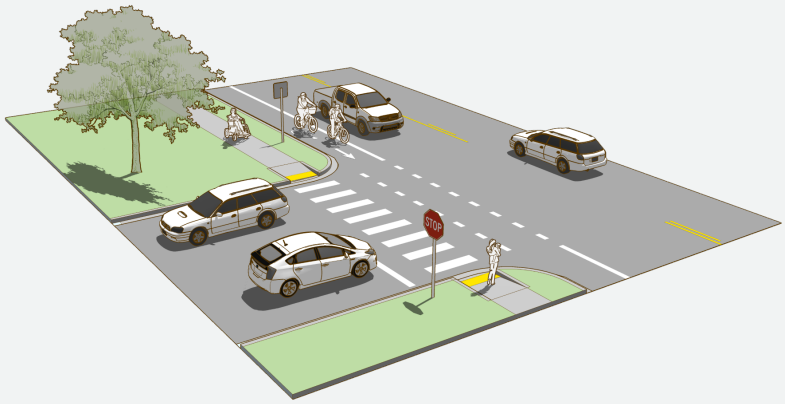
Estimated Cost: $400,000*-$880,000*



Map 1-3. Phase 2

PRIMARY FACILITY TYPE

Bicycle Lane: On Road, Visually Separated



SECONDARY FACILITY TYPE

Shared Roadway: On-Road, Mixed Traffic

Phase 3: Embrace the Edges

N
Not to Scale

DESTINATIONS

- Town of Ireland
- Ireland Elementary School
- Vincennes University Jasper
- Habig Center
- Purdue Extension
- Southern Indiana Education Center
- Garden Meadow Estates
- Holy Trinity School
- Jasper Middle School
- Jasper Elementary School

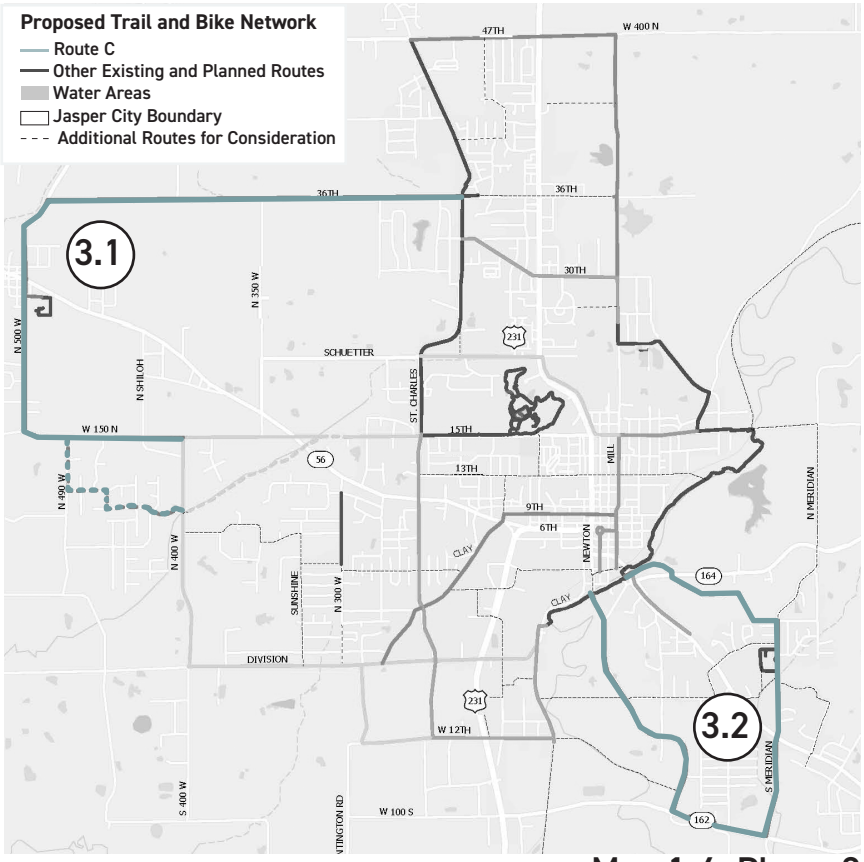
ESTIMATED COST

Segment 3.1

Estimated Cost: $1,400,000-$2,800,000

Segment 3.2

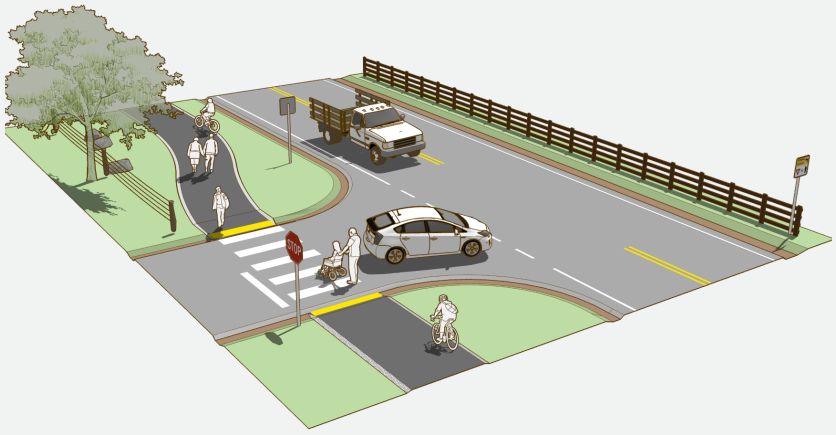
Estimated Cost: $2,200,000-$2,300,000



Map 1-4. Phase 3

PRIMARY FACILITY TYPE

Shared Use Path: Off-Road, Physically Separated



SECONDARY FACILITY TYPE

Paved Shoulder: On-Road, Visually Separated

Phase 4: Recreation Route

N
Not to Scale

DESTINATIONS

- Dubois County Health Department
- Jasper Youth Sports Complex
- Kimball Electronics World Headquarters
- Buffalo Trace Golf Course
- Indiana State Police

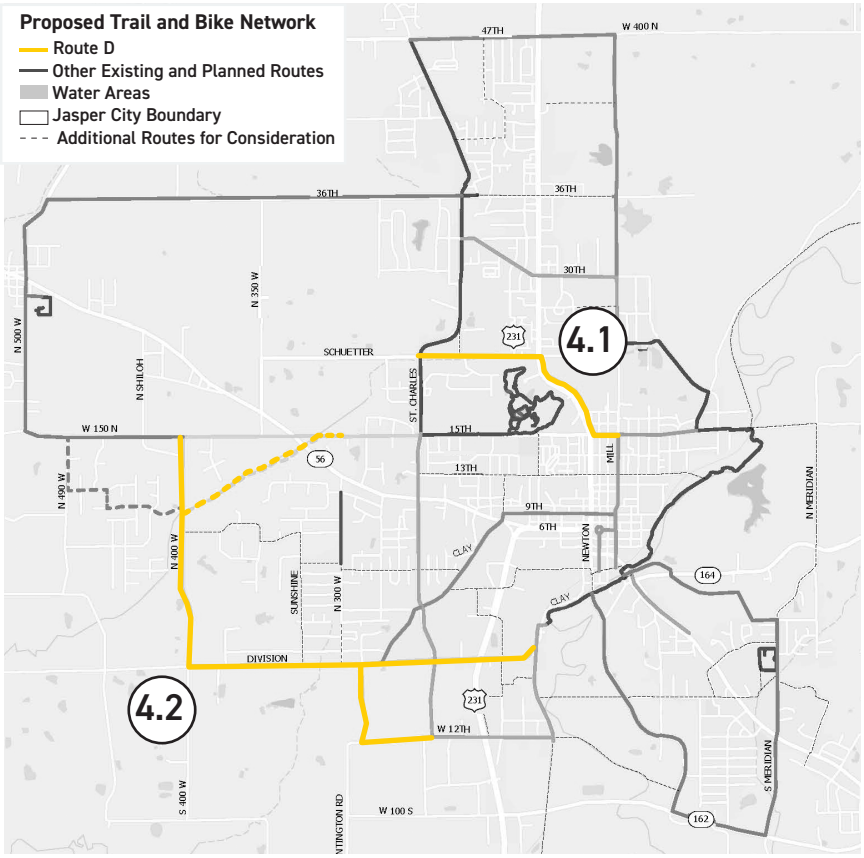
ESTIMATED COST

Segment 4.1

Estimated Cost: $1,500,000-$1,800,000

Segment 4.2

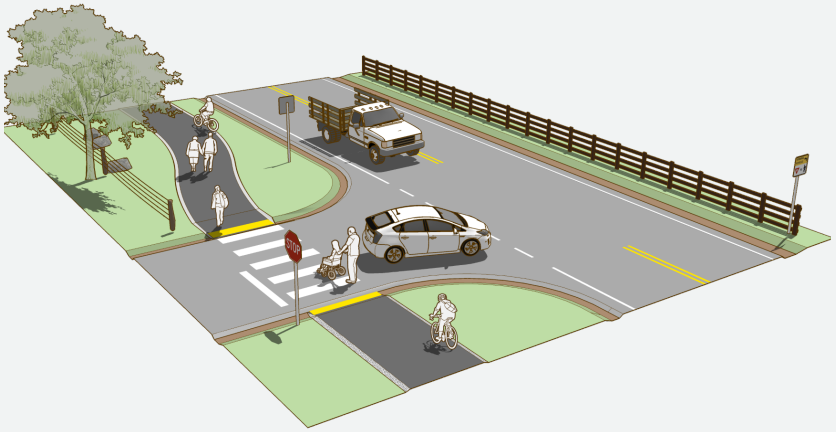
Estimated Cost: $350,000-$780,000



Map 1-5. Phase 4

PRIMARY FACILITY TYPE

Shared Use Path: Off-Road, Physically Separated



SECONDARY FACILITY TYPE

Bicycle Lane: On-Road, Visually Separated

Phase 5: Knit the Network

N

Not to Scale

DESTINATIONS

- Memorial Hospital and Health Care Center
- Robert E. Parker Park
- Jasper Rubber Products

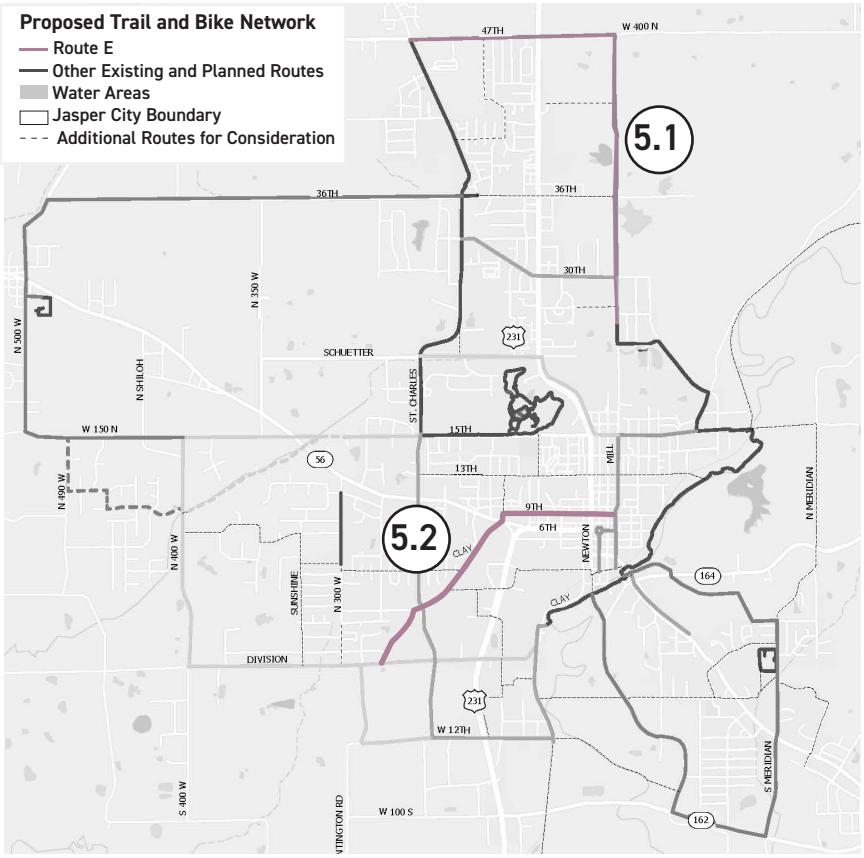
ESTIMATED COST

Segment 5.1

Estimated Cost: $200,000-$980,000

Segment 5.2

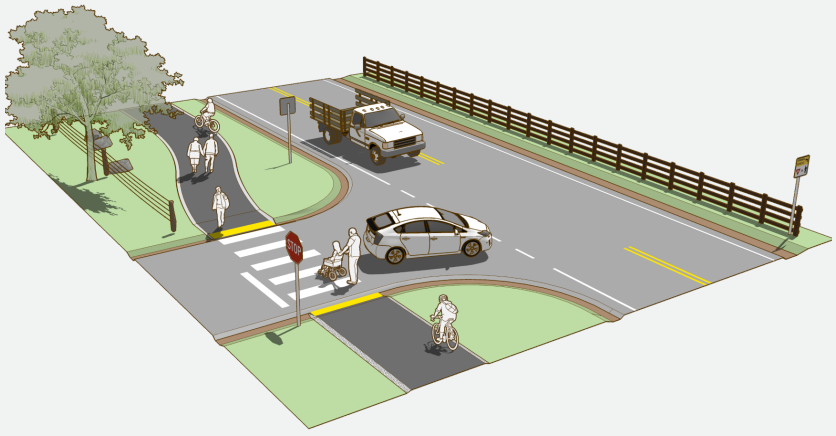
Estimated Cost: $1,400,000



Map 1-6. Phase 5

PRIMARY FACILITY TYPE

Shared Use Path: Off-Road, Physically Separated



SECONDARY FACILITY TYPE

Bicycle Lane: On-Road, Visually Separated

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Recommended Facilities

When considering the range of potential bicycle facilities for Jasper, it is important to utilize the latest design guidance available and understand the best practices for their application. While it may be the first time the City of Jasper is considering certain facilities, guidelines allow the City to use lessons learned in other municipalities and construct the most comfortable and appropriate facility possible. Drawing on nationally-recognized best publications for bicycle, pedestrian, and multi-modal facility design, this section provides an overview of design guidance and a review of facility types.

The design guidance for this Plan draws from best practices developed by The American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA), the agency responsible for the publication and periodic updating of the Manual on Uniform Traffic Control Devices (MUTCD). These manuals ensure traffic control devices, such as signs, pavement markings, and signals, are consistently used so that they may be understood and predictable for all roadway, trail, and sidewalk users. The FHWA Small Town and Rural Multi-modal Networks Guide provides design guidance specifically for small towns where the needs of both motorists and bicyclists may be different than in urban areas.

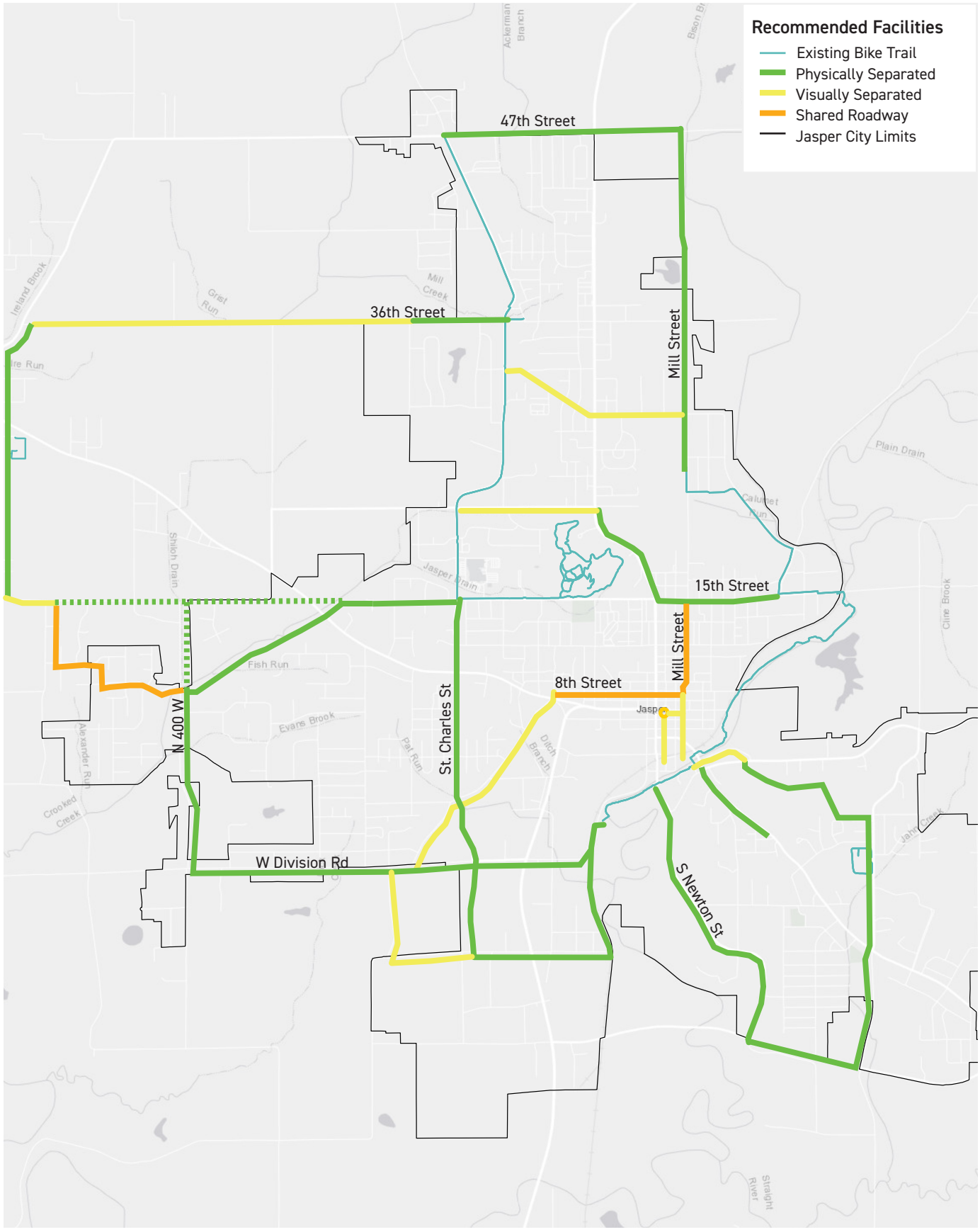
The guidelines in these manuals are important tools for stakeholders when building the Jasper bicycle network. They let stakeholders know how much space is required for each facility type, anticipated impacts to traffic and access, and include context for application based on roadway speed, traffic volume, number of travel lanes, and land use. This guidance ensures recommendations proposed in this document are feasible and provide a cohesive, comfortable, and context-sensitive bicycling network. While design guidelines included in this plan provide an introduction and a high-level understanding of treatments available, design guidance continues to evolve. When implementing this plan, it is recommended that Jasper and its stakeholders continue to refer to these guidelines as well as the source publications for the most up-to-date design guidance.

A variety of bicycling facilities are available to meet the varying needs and abilities of a range of bicyclists. Bicyclist comfort is impacted by how much space they are provided in a roadway or trail environment, and how much separation they are provided from automobile traffic – particularly in the presence of high speed traffic and heavy vehicles. As categorized by the Federal Highway Administration, bicycle facilities generally fall into three categories:

- Shared roadway environments where cyclists and drivers operate in the same space. Appropriate for low-speed, low-volume roadways.
- Visually separated facilities use pavement markings and lateral spacing to separate roadway users on roadways that are busier than the first category.
- Physically separated facilities use physical elements – curbs, parkways, medians, or other barriers–separates motorized traffic from all other users.

Each of these types of facilities have benefits and trade-offs that should be considered such as width, cost of installation, and maintenance needs. It is important for bicyclists of all skill levels and ages to feel comfortable using the bicycling network. Families bicycling with children tend to feel more comfortable on slower or physically separated facilities, while commuters and confident adult bicyclists may feel comfortable riding with traffic in shared lane or visually separated facilities. A well-designed bicycle network considers all users and provides a network of facilities that offers a choice of safe bicycling facilities.

The recommended facility types in **Map 1-7** are for general planning purposes and each corridor must be analyzed to determine what requirements must be met. The following pages provide illustrative design guidance for a variety of facility options recommended for Jasper.



Map 1-7. Recommended Facility


Bicycle Boulevard in Clintonville, OH

clintonvillegreenways.org

Shared Roadway: Bicycle Boulevards

Bicycle boulevards are designed to prioritize cyclists as equally rightful users of the road as vehicles along particular corridors. They are most effective and safe when applied to residential roads with low traffic volumes and lower speeds.

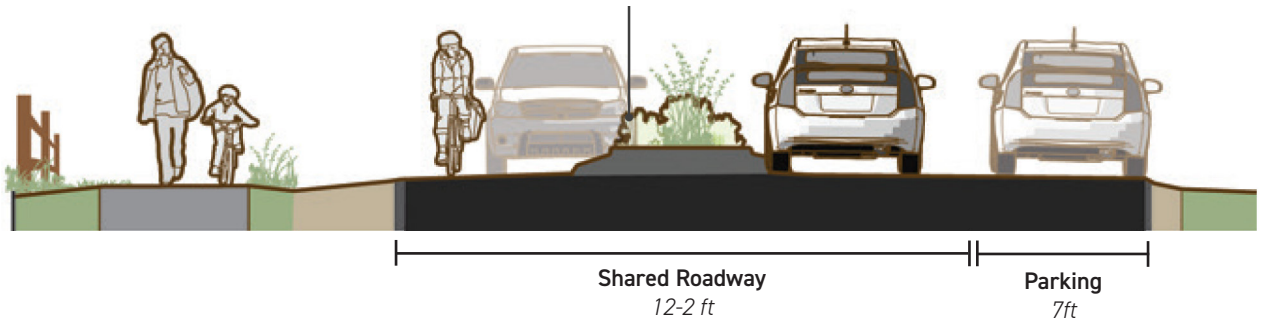
Traffic calming tools like chicanes and traffic circles are helpful along bicycle boulevards as they reinforce the desire for lower speeds along these residential roads. Bump outs should be applied to help calm traffic by visibly narrowing the road. Bump outs serve the principal purpose of shortening crossing distances for pedestrians, making pedestrians more visible at intersections, and ensuring cars do not park too close to the intersection.

Bicycle boulevards are best on roads with two-way traffic and should be marked with sharrows. The street centerline should not be marked. Omitting the centerline results in more cautious driving which is ideal in residential areas.

Way-finding signs indicating the direction of the boulevard and how to reach key destinations make bicycle boulevards more user friendly and help keep cyclists on designated routes.

At minor intersections, stop and yield signs need to be easily visible to cyclists. Continental crosswalks and stop bars to signal to both cyclists and vehicles of potential conflicts and the presence of crossing pedestrians should be applied to major intersections. At higher conflict intersections or higher volume intersections, flashing beacons and other high visibility crossing signals may be warranted.

Figure 1-3. Bicycle Boulevard Cross Section



https://streets.mn/2014/09/30/writers-round-up-advisory-bike-lanes/

Visually Separated: Advisory Shoulders

Advisory shoulders are designed for multi-modal traffic and are placed along the edges of collector roads. These collectors should connect to community origins and destinations and have few intersections or access points.

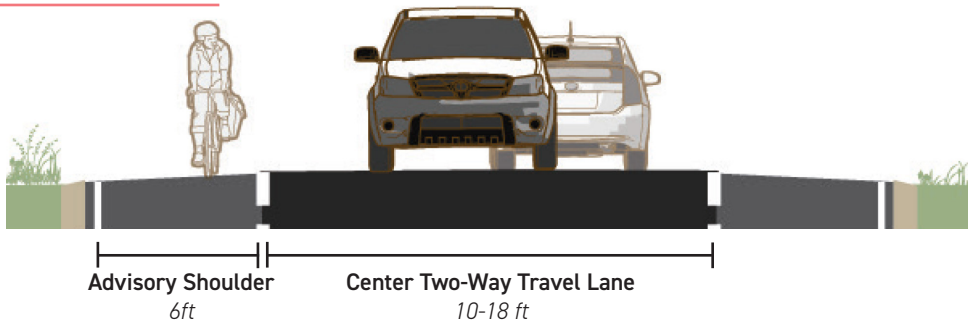
Bicycle and/or pedestrian demand should ideally already exist in order to justify expanding the roadway to add advisory shoulders. When considering communities new to on-street cycling, advisory shoulders are appropriate to implement after installing lower-stress facilities to grow ridership and increase the level of comfort of riders to the point where they would be comfortable using an advisory shoulder.

Advisory shoulders require applying wide shoulders (6 ft preferably but not less than 4 ft) to each side of the road. Contrasting pavement for the shoulder and the travel lanes helps drivers visually see the difference between their travel lanes and cyclists/pedestrian travel lanes. Shoulder areas should be marked as separate from the travel lanes with striped white lines. Signage indicating two-way vehicle travel, no parking on pavement, no centerline present, and the presence of cyclists should be used liberally along advisory shoulder routes, particularly when first introduced.

Two-way vehicle travel can be allocated 15-18 ft total. While this is not the typical width for two lanes, vehicles are expected to use the wide shoulders when cars are passing from opposite directions and then move back to the middle of the travel lane. The higher the daily traffic, the larger the two-way vehicle travel lane should be as the likelihood of conflict between these different modes increases. This design assumes it will be unlikely that cyclists/pedestrians, and two cars, each from an opposing direction, will be present all at once.

To apply an advisory shoulder facility, an approved Request to Experiment is required as detailed in Section 1A.10 of the MUTCD.

Figure 1-4. Advisory Shoulder Cross Section




Paved Shoulder in Ridgecrest, CA

FHWA Rural Design Guide

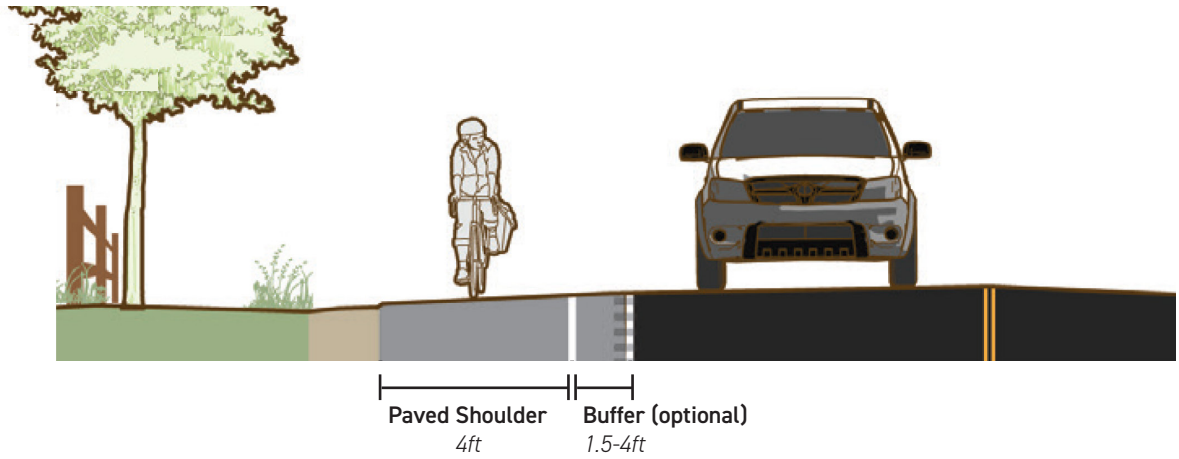
Visually Separated: Paved Shoulders

Paved shoulders should be applied to rural roads with moderate to high traffic volumes and moderate to high speeds. These are higher stress bicycle and pedestrian facilities. The likely users of these facilities would be experienced cyclists using them for recreation or long-distance commuting. Paved shoulders are appropriate outside of built up areas where bicycle and pedestrian activity is expected.

Walkable shoulders should be provided along both sides of the county roads and highways used by pedestrians. In the Jasper area, paved shoulders to facilitate safer pedestrian usage could be applied to the roads that connect the pockets of residential development surrounded by agricultural land.

Contrasting pavement should be used to delineate vehicle travel from cyclists and pedestrian travel along the shoulders. A striped centerline for vehicle travel lanes is expected along with double white striped longitudinal markings between shoulder and vehicle travel lanes with rumble strips. It is important to add auxiliary bypass lanes at intersections to the right side of the roadway. No signs are required, but signs indicating the road is also a bicycle route may be helpful.

Figure 1-5. Paved Shoulder Cross Section




Bike Lane in Long Beach, CA

Visually Separated: Bike Lanes

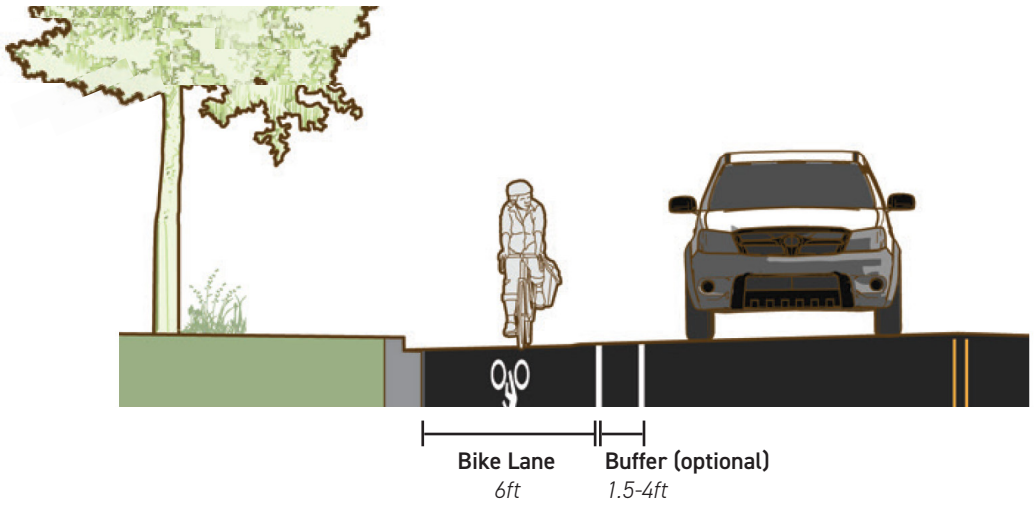
Bike lanes are some of the most common or well-known on-street bicycle facilities. They provide a designated space for cyclists separate from vehicle traffic. They are appropriate along roads with moderate speeds and volumes, particularly local residential and collector roads between built up areas where increased pedestrian and cyclist activity is expected. Bike lanes can be one-directional on each side of the road or two-directional and combined on the same side of the road,

In contrast to paved and advisory shoulders, bike lanes separate cycling from pedestrian activity. Providing a designated bike lane can provide a consistent area for bicyclists to travel outside the path of motor vehicles and pedestrians.

Bike lanes should be 6.5 ft wide (minimum of 4ft) with a 1.5-4 ft buffer. Signage identifying the bike lane and route is helpful for cyclists and drivers. Bike decals should be applied to the street as well as no parking signs where appropriate so cars do not park in the bike lanes. When possible, provide a minimum of 1.5 ft buffer area distancing the bike lane from the adjacent motor vehicle travel lane. Buffers can include visual and physical barriers.

Bike lanes at intersections should be designed to reduce speeds, minimize exposure, raise awareness, and communicate right-of-way priority. Green paint can be used to highlight conflict areas between cyclists and pedestrians or vehicles.

Figure 1-6. Bike Lane Cross Section



Scioto Mile Shared Use Path in Columbus, OH

https://www.imtravelinglocal.com/2019/08/12/self-guided-tour-columbus-oh/

Physically Separated: Shared Use Path

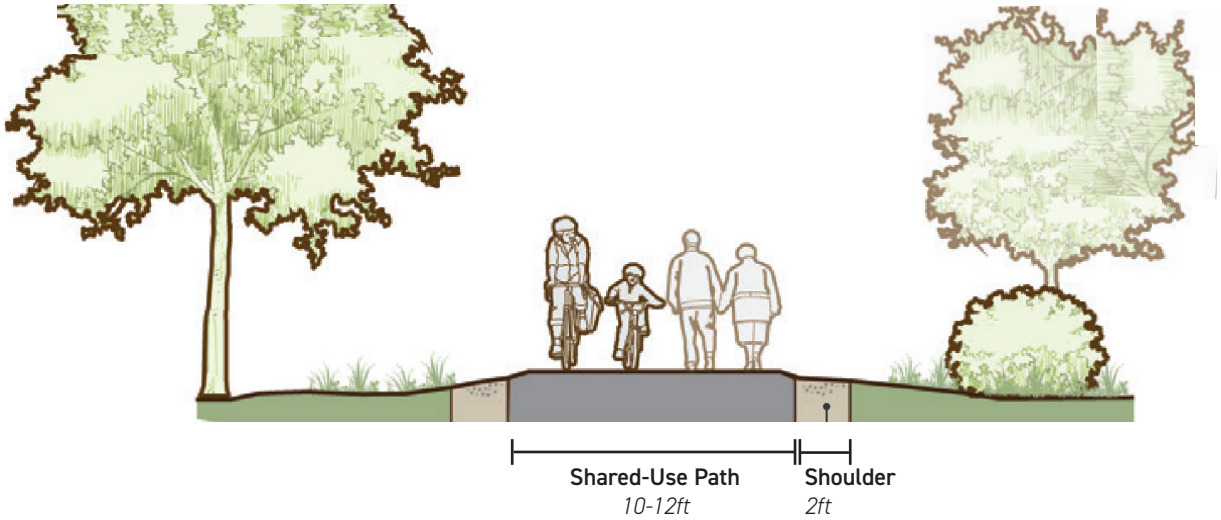
Shared use paths, or trails, operate independent of streets and roads. They can serve connectivity, recreation, and tourism functions and can be built in rural areas outside of city centers and within built-up areas. They act as multi-modal corridors connecting people to destinations via safer, convenient, and interesting routes.

Typically, shared use paths range from 10-12 ft wide for two-directional path with 2 ft shoulder on each side. For heavily used paths, at least 12 ft wide is recommended. Around turns and forks in the path, centerline striping may help people move safely in opposite directions but otherwise, no centerlines are necessary. Travel speeds along shared use paths should not exceed 20 mph. Cyclists that travel at higher speeds are not the intended users of these off-street facilities except at off hours where other modes of travel are not present.

Marking the outer edges of the path is helpful for evening users. Applying yield and way-finding signs where appropriate improve user experience and can promote attendance at local attractions and activity centers.

In most cases, when a trail crosses a road with vehicle traffic, some form of marked crosswalks and sometimes a flashing beacon or other indicators are necessary.

Figure 1-7. Shared Use Path Cross Section




Sidepath, Colorado River Valley

FHWA Rural Design Guide

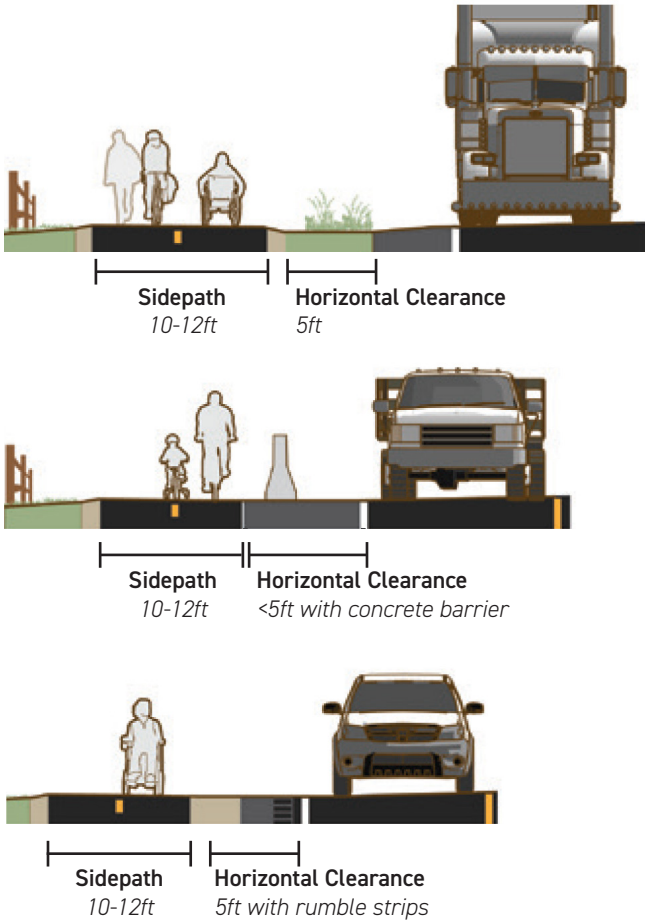
Physically Separated: Sidepath

A sidepath is a bi-directional shared use path adjacent or parallel to a roadway. Sidepaths are ideal multi-modal facilities for heavy traffic roadways with any speed. They are often applied adjacent to highways and major thoroughfares.

Paths are usually between 10-12 ft wide with a small shoulder and at least a 6.5 ft buffer between traffic. Landscaping between the path and the road also helps improve user comfort. Additional painted markings along the edges of the path and the centerlines are useful for evening users and when there are high volumes of multi-modal traffic on the sidepath.

Signs should be used to mark the shared use path, its bi-directionality, and wayfinding to local destinations or connections other types of multi-modal facilities like bicycle boulevards or shared use paths/trails.

Figure 1-8. Sidepath Cross Section



Separated Bike Lane, Indianapolis Cultural Trail

https://bikeokc.wordpress.com/2014/01/21/innovative-bike-infrastructure-for-ok/

Physically Separated: Separated Bike Lane

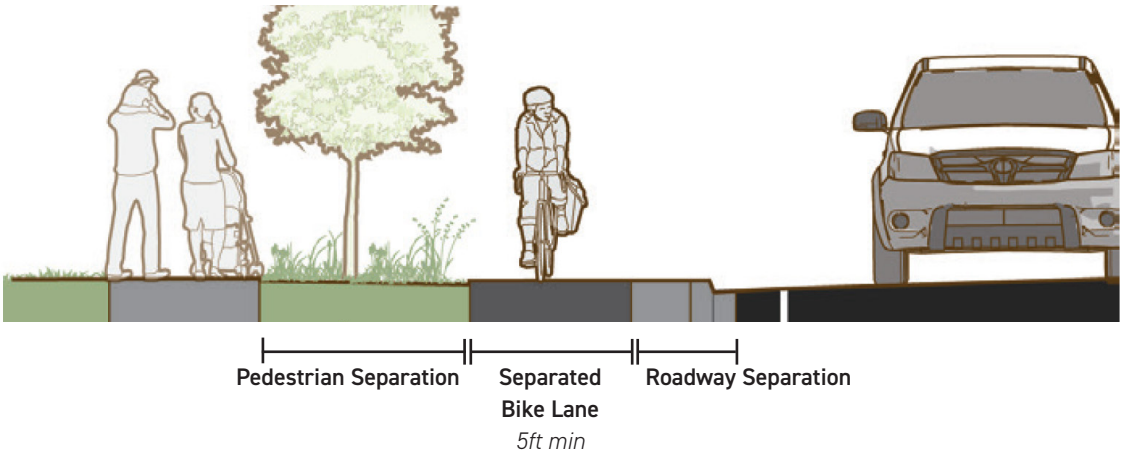
A separated bicycle lane runs adjacent to the roadway but separate from the roadway by a vertical element. This vertical element can be bollards, landscaping, or curb if the separated bike lane is at sidewalk grade. A separated bike lane can run in one direction on each side of the road or in two-directions on one side of the road.

This type of bike facility is more protective than bike lanes separated by painted buffers. Because separated bike lanes offer a high level of protection, they are appropriate in almost any context but are most effective on roads that function like collectors with vehicle volumes over 3,000 ADT and speeds over 10 mph. They are generally used in a more urban atmosphere where a decent volume of cyclists and pedestrians are present (i.e. college campuses, downtown areas, commuter routes).

Separated bike lanes should be 7 ft (absolute minimum is 5 ft) wide in each direction. They can be at road or sidewalk grade. Important considerations include stormwater management, transit stops and routes, maintenance, debris clearing, and snow plowing.

If at sidewalk grade, separated bike lanes need to be visually or physically separated from the sidewalk. Bike lane signage is often helpful as well as signage for wayfinding and direction of travel.

Figure 1-9. Separated Bike Lane Cross Section



Evaluation

Performance management techniques promote informed decision making by relating community goals to the measurable effects of public investments. Key steps in performance management are to decide what to measure in order to capture the current state of the system, to set targets to improve those measures, and to use the measures to evaluate and compare the effects of proposed projects and policies. The goals identified in the Impact Jasper Comprehensive Plan serve as the basis for the performance measures. In particular the goal of connecting people and places serves as the foundation for this report and specifically call out strategies to become a more bicycle friendly community. To achieve these goals, the following objectives are recommended with correlated performance measures to be evaluated annually:

Objective	Strategy
Increase amount and mode share of bicycle riding in Jasper for all trip purposes.	Provide community incentives for bicycle commuting
	Celebrate Bike to Work Day
	Increase the number of community hosted bike rides
Improve safety for pedestrian and bicycle riders in Jasper.	Adopt a community wide Safe Routes to School Program
	Increase visibility of law enforcement and other public officers on bikes
	Develop a specific plan or program to reduce cyclist/motorist crashes
Create a high-quality bicycle and pedestrian network that connects to places people want to go and provides an alternative travel options.	Increase the number and location of bike parking facilities throughout Jasper
	Designate a bicycle program manager
	Increase the miles of high quality bicycle facilities in Jasper as recommended by this plan
	Adopt a complete streets ordinance
Improve bicycle riding for all through equity in public engagement, program delivery, and capital investments.	Host annual bicycle safety courses for adults
	Develop an up to date bicycle map for public use
	Evaluate local ordinance to ensure they treat bicyclist equitably
	Dedicate a percent of all capital improvement budgets to bicycle facilities
	Establish a bicycle advocacy organization
Build vibrant communities by creating a welcoming environment for bicycle riding.	Create a community education program to educate motorist and cyclist on their rights and responsibilities as road users
	Host National Bike Month activities
	Develop a Bicycle Advisory Committee

Estimates

The following information provides a general opinion of probable construction costs for the recommended bicycle facilities. Costs are based on conceptual design evaluation of the facilities and pre-engineering design development. The unit cost numbers are based on cost data from FHWA's Costs for Pedestrian and Bicyclist Infrastructure Improvements (2013).

The costs were adjusted for inflation to reflect the year 2021 construction market. They are subject to traditional market place fluctuations. Costs do not include estimated cost of right-of-way purchase or utility relocation. The estimates are intended for planning purposes only.

Table 1-4. Unit Costs for Bicycle Improvements

Infrastructure Type	Description	Avg Cost	Cost Unit
Bicycle	Bicycle Lane	$135,047	per mile
Bicycle	Signed Route	$25,423	per mile
Bicycle	Shared Lane Marking	$202	each
Bicycle	Multi-Use Trail - Paved	$487,924	per mile
Bicycle	Multi-Use Trail - Unpaved	$123,101	per mile
Bicycle Parking	Bicycle Locker	$2,119	each
Bicycle Parking	Bicycle Rack	$669	each

Table 1-5. Estimated Cost for Bikeway Improvements

	Description	Estimated Cost Range		Length
		Recommended Facility	100% Paved Multi-use Trail	
Phase 1.1	Northern Segment	$300,000	$680,000	1.4 miles
Phase 1.2	Southern Segment	$1,700,000	$1,700,000	3.5 miles
Phase 1.3	Schnitzelbank Spur	$100,000	$100,000	0.2 miles
Phase 2	Connect the Core	$400,000*	$880,000*	1.8 miles
Phase 3.1	Ireland Loop	$1,400,000	$2,800,000	5.8 miles
Phase 3.2	Vincennes U. Loop	$2,200,000	$2,300,000	4.7 miles
Phase 4.1	Youth Sports Complex Connector	$1,500,000	$1,800,000	3.6 miles
Phase 4.2	Mill Street to Schuetter Rd Connector	$350,000	$780,000	1.6 miles
Phase 5.1	Trueman Road to 9th Street	$200,000	$980,000	2.0 miles
Phase 5.2	Mill Street and 47th Street	$1,400,000	$1,400,000	2.9 miles
TOTAL		**$9,550,000**	**$13,400,000**	**27.5 miles**

*Cost of bicycle infrastructure only, does not reflect additional considerations for Complete Streets improvements

Implementation

Bicycle and pedestrian improvements can be funded through a variety of federal and local sources. Federal funds are well suited to higher cost infrastructure projects, such as sidewalks or the Jasper River Walk. Improvements that involve mainly paint, such as Shared Lane Markings, could be implemented through routine maintenance, set-aside funds, or grouped as one federal funding application.

The City of Jasper should plan for the cost of ongoing maintenance for general maintenance (e.g. debris cleaning, snow plowing, filling potholes) and paint, as grants for maintenance are rare.

Federal Funding Sources

The primary source of federal funds for transportation projects is the Fixing America's Surface Transportation Act, commonly known as the FAST Act[1]. The FAST Act is set to expire in September 2021. It is possible that a new funding bill will replace the FAST Act, instituting new rules for funding. It is reasonable to expect that many of the same funding opportunities will exist under a new transportation bill, however the names or performance measures may change slightly. In addition to funding sources through the FAST Act, there are other federal funding options. Federal funding sources are described below in more detail.

There are several federal funds that INDOT can use. Some funds, such as the Major Bridge Fund, can be used only for bridges, while other funds are unrestricted. Certain funds, such as Surface Transportation Block Grants (STBG)-Urban can be used only in an urbanized area. However, other funds, such as STBG-Rural, must be used outside an urbanized area in locations such as Jasper.

Counties also receive dedicated federal funds. Dubois County receives an annual allotment of federal bridge funds known as HBP (Highway Bridge Program). Each county's allotment is based on the total need of deficient local bridges in the county as compared to that which exists statewide. These funds are limited to use on existing local structures within the county which meet eligibility criteria based solely on their deficient need and only when authorized by counties in coordination with INDOT. Counties also receive an allocation of federal STBG-Rural funds which may only be used to address needs on county highways or other rural federal-aid eligible routes throughout the county that are outside of the urbanized area and only when authorized by counties in coordination with INDOT. Counties may compete for other statewide transportation funds such as Major Bridge funds.

1 *https://www.fhwa.dot.gov/fastact/factsheets/transportationalternativesfs.cfm*

Municipalities do not receive automatic individual allocations of federal funds to build and maintain infrastructure. Municipalities can apply for competitive grants such as BUILD, HSIP, and HPP4 . The required match for these grant programs comes from the jurisdiction's share of Motor Fuel Tax revenues, and a combination of sales taxes and/or property taxes.

In addition to the federal funding sources discussed above, there are other, smaller sources of federal funds for multi-modal transportation projects. For example, local jurisdictions can compete for funding through the Transportation Alternatives (TA) program for projects related to transportation enhancements and the former Safe Routes to School program.

The City of Jasper should plan for the cost of ongoing maintenance for maintenance and paint, as grants for maintenance are rare.

Highway Safety Improvement Program (HSIP)

The HSIP emphasizes a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. Eligible projects include safety improvements for all roadway users. The Indiana Department of Transportation oversees the distribution of HSIP funds, with an emphasis on proactive, system wide improvements. Projects should align with the goals of the Indiana's Strategic Highway Safety Plan[2].

State and Community Highway Safety Grant Program (Section 402)

Section 402 funds are used to support State and community programs to reduce deaths and injuries. Pedestrian safety has been identified as a national priority. Section 402 funds can be used for a variety of safety initiatives including conducting data analyses, developing safety education programs and conducting community-wide pedestrian safety campaigns. The funds must be consistent with the State Highway Safety Plan[3].

Recreational Trails Program (RTP)

The RTP[4] is a program incorporated into the FAST Act, Transportation Alternatives Program. However, funding for this program is administered by the Indiana Department of Natural

2 *https://www.in.gov/indot/2357.htm*
3 *https://safety.fhwa.dot.gov/legislationandpolicy/policy/section402/, https://www.in.gov/indot/files/shsp.pdf*
4 *https://www.fhwa.dot.gov/environment/recreational_trails/, https://www.in.gov/dnr/outdoor/4101.htm*

Resources. Grants are available for trail development and renovation. Projects require a minimum of a 20% local match.

Environmental Protection Agency

The Environmental Protection Agency[5] offers a variety of grants that address community health. Grants may help fund green infrastructure that can also be used enhance walkability and bikeability. These broad-based community grants require significant collaboration with local coalitions. As grants opportunities are always evolving, the EPA website should be checked regularly.

Local Funding Sources

Local funding for bicycle and pedestrian projects and programs is an important component when considering developing new facilities. Many federal programs require a local match, the funding sources below can be used to fund projects in full or to be used as a local match when using federal funds.

Capital Improvement Budget Set-Aside

Jasper could make a policy decision to set aside a percentage of capital improvement budget to fund bicycle and pedestrian projects. These projects could be incorporated into other road work being done (complete streets) or stand-alone projects. These funds can be leveraged as a local match to secure federal funds.

Municipal Bonds

Local government units can also consider general obligation bonds and cumulative capital improvement funds for funding transportation improvement projects.

Economic Improvement Districts

Economic Improvement Districts ("EIDs") are public-private partnerships in which local property and business owners elect to make a collective contribution to the maintenance, development, and promotion of their property.

Economic Development Income Tax (EDIT)

This tax revenue is set to pay for infrastructure to promote business growth, or for other facilities. Revenues collected from this tax are divided among county, cities, and towns based on property tax levy shares or based on population shares.

Tax Increment Financing (TIF)

As per the State of Indiana Code 36-7-14, Tax Increment Financing is a government finance mechanism for development and redevelopment which captures increases in taxable assessed value within a defined area and then uses property tax revenue derived from these increases to finance public improvements within the specified area.

Private Funding Sources

Several national and state foundations provide grants for pedestrian and bicycle projects. These grants can play a significant role in funding projects and providing match for federal funds.

Bikes Belong Grant Program[6]

Bikes Belong is a national organization dedicated to putting more people on bikes. The organization funds multi-use trails with a strong desire to leverage federal funding.

Robert Wood Johnson Foundation (RWJF)[7]

The RWFJ offers a wide range of funding opportunities to promote healthy and active living. The website offers details on various grants and calls for proposals.

AARP Community Challenge Grants[8]

The AARP Community Challenge provides small grants to fund "quick-action" projects that can help communities become more livable for people of all ages. Applications are being accepted for projects to improve housing, transportation, public space, technology ("smart cities"), civic engagement and more.

5 *https://www.epa.gov/grants*

6 *http://www.bikesbelong.org/grants/*

7 *https://www.rwjf.org/en/our-focus-areas/focus-areas/healthy-communities.html*

8 *https://www.aarp.org/livable-communities/community-challenge/info-2020/2020-challenge.html¬*

Roadway Plan

Fostering and investing in a safe and efficient transportation system is crucial to improve economic conditions in an increasingly competitive economy, and at the same time enhance accessibility and quality of life for residents. Unsafe, unreliable and inefficient transportation systems can have a significant economic cost, such as reduced or missed economic opportunities and a lower quality of life. A well-maintained transportation network encouraging active transportation options is also important for developing healthy neighborhoods, emergency services, increased freight movement, and recreational opportunities.

The Roadway Plan proposes strategies to improve the transportation network considering the diverse functions and users of the road system, including travel that reaches beyond Jasper's boundaries. Jasper's economy relies upon strong connections to major highways on the region's periphery such as US-231 and US-164. As Jasper has continued to grow and expanded in the late 20th century, transportation within the City has become critical to connecting residents to centers of activity and employment.

The Impact Jasper Comprehensive Plan recognized the importance of transportation in the City's future success. One of the plan's four primary goals is to Connect People and Places. To accomplish the goals of Impact Jasper, it is necessary to think holistically about Jasper's transportation system. This Roadway Plan is a guide for implementing a well-functioning, connected, and multi-modal transportation system for all. Policies, best practices, and projects are proposed to enhance the functionality of the road system, improve the movement of freight, and support a robust network of pedestrian and bicycle facilities.

The priorities of this plan were created with the help of subject matter experts and the City Staff, to ensure the priorities fit residents' needs, while staying within City resources (see **Appendix B and C** for more detailed analysis).

The Roadway Plan encompasses a planning horizon of twenty years (2040). Recommendations consider parameters set by the City of Jasper for staff time and budget. The planning priorities are:

- Prioritize the safe movement of people and goods
- Strengthen the viability and connectivity between the Courthouse Square and the Riverfront
- Improve transportation infrastructure and expand connectivity
- Financial responsibility and consideration of multiple funding sources

The priorities guided the selection and prioritization of recommendations in the plan.

The following recommendations on infrastructure, policy, and programs were based on these priorities.

Recommended Roadway Improvements

The recommendations made for the roadway plan sought to address regional system issues, but also pointed intersection-level issues at likely problematic intersections. The capacity analysis showed that several affected intersections will likely continue to work well in the future even with future growth, such as 30th Street and Mill Street, but others will need improvement, such as 36th Street and St. Charles Street.

The safety analysis generally revealed that Access Management is a significant issue along US 231. Implementing a plan to reduce the number of access points will be a long and arduous process. As has been called for in Jasper's Downtown plan and Comprehensive Plan, the downtown core area should be enhanced with complete streets practices to make the area safer for all modes of travel, create renewed attraction between downtown and the river, and generally heighten economic activity.

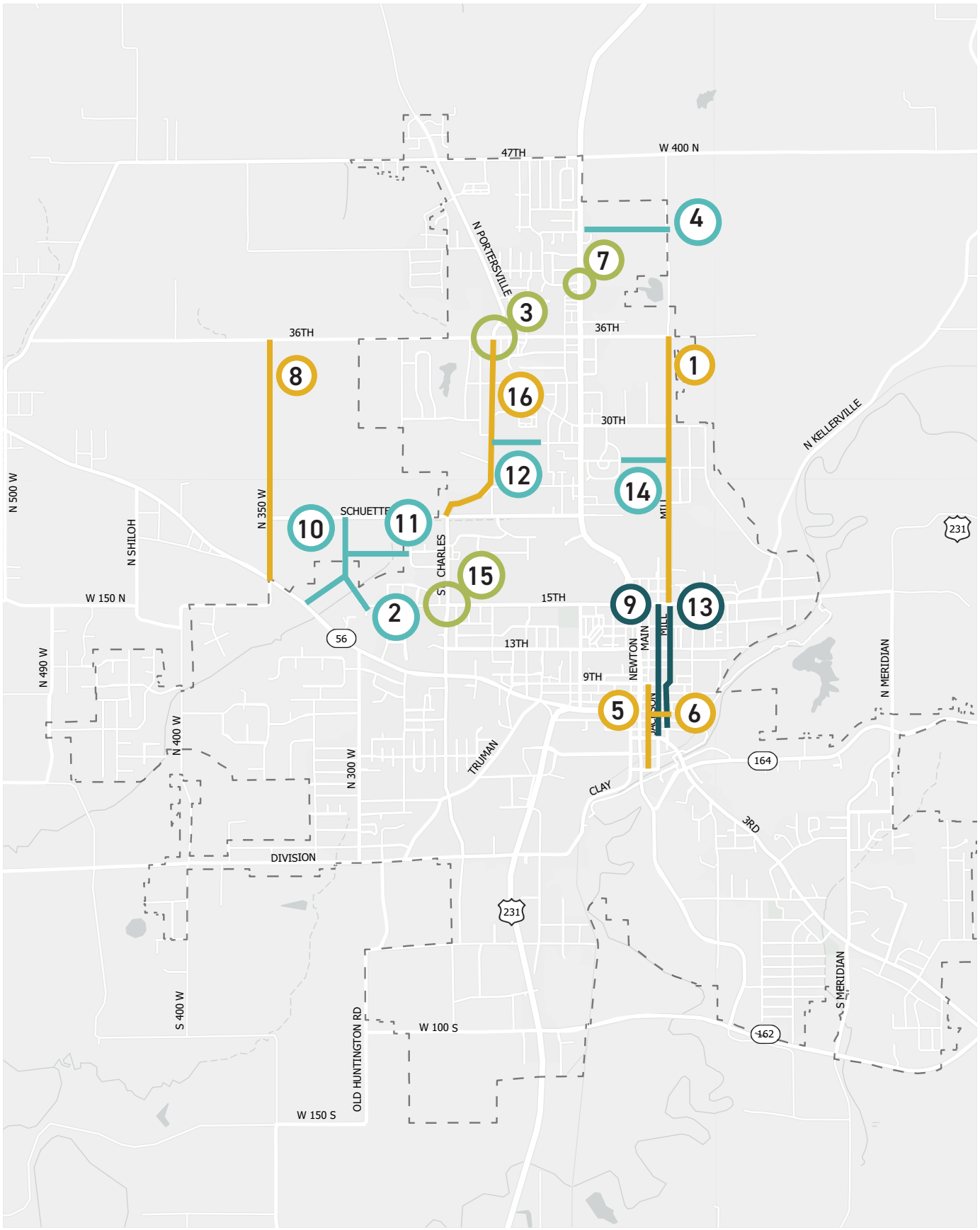
The recommendations listed in **Table 1-6** and shown in **Map 1-8** included both physical improvements, as described further in this section, as well as policy or programmatic recommendations such as proactively creating and implementing an Access Management plan and revisiting the 2015 Downtown Parking Study.

The physical improvements were categorized in four ways:

- Corridor improvements – these are more systematic improvements to existing routes that address travel over longer distances. These changes can affect a driver's route choices, and may have benefits and impacts to other regional roadways.
- Intersection improvements – these improvements are local in nature, and likely would not impact a driver's route choice.
- One-way to two-way conversion – these conversions are called out separately from corridor and intersection improvements, as these will need special public outreach when implementing due to the change in driving habits. These also tend to have additional benefits, such as economic benefits, that should be recognized.
- New roadways – similar to corridor improvements in that these improvements will affect driver's choices and reduce volume on nearby regional routes, except these improvements add new connectivity within the network where none existed before.

Table 1-6. Recommend Roadway Improvements

Project ID	Project Name	Project Type
1	Mill St from 15th to 36th (Widen to accommodate more trucks, multi-modal path)	Corridor Improvement
2	15th St Extension to SR 56	New Roadway
3	36th & St. Charles (Convert to roundabout)	Intersection Improvement
4	East-West Connector from US 231 to Mill St North of Home Depot	New Roadway
5	Main Street from 1st to 9th (Create Complete Street)	Corridor Improvement
6	E 6th from Courthouse Sq. to Mill St (Create Complete Street)	Corridor Improvement
7	US 231 & Baden-Strasse/Walmart (Adjustments to frontage road on west side)	Intersection Improvement
8	N 350 W from SR 56 to 36th (Upgrade to carry increased future traffic)	Corridor Improvement
9	Jackson St from 3rd to 15th	One-Way Conversion
10	North-South Connector from 15th St Extension to Schuetter	New Roadway
11	20th St Extension	New Roadway
12	Extend 28th St to St. Charles (Extend dead-end streets)	New Roadway
13	Mill St from 4th to 15th	One-Way Conversion
14	Extend 26th St to Mill St	New Roadway
15	15th & St. Charles (Convert to roundabout)	Intersection Improvement
16	St. Charles from Schuetter to 36th (Convert to boulevard, reduce speeding)	Corridor Improvement

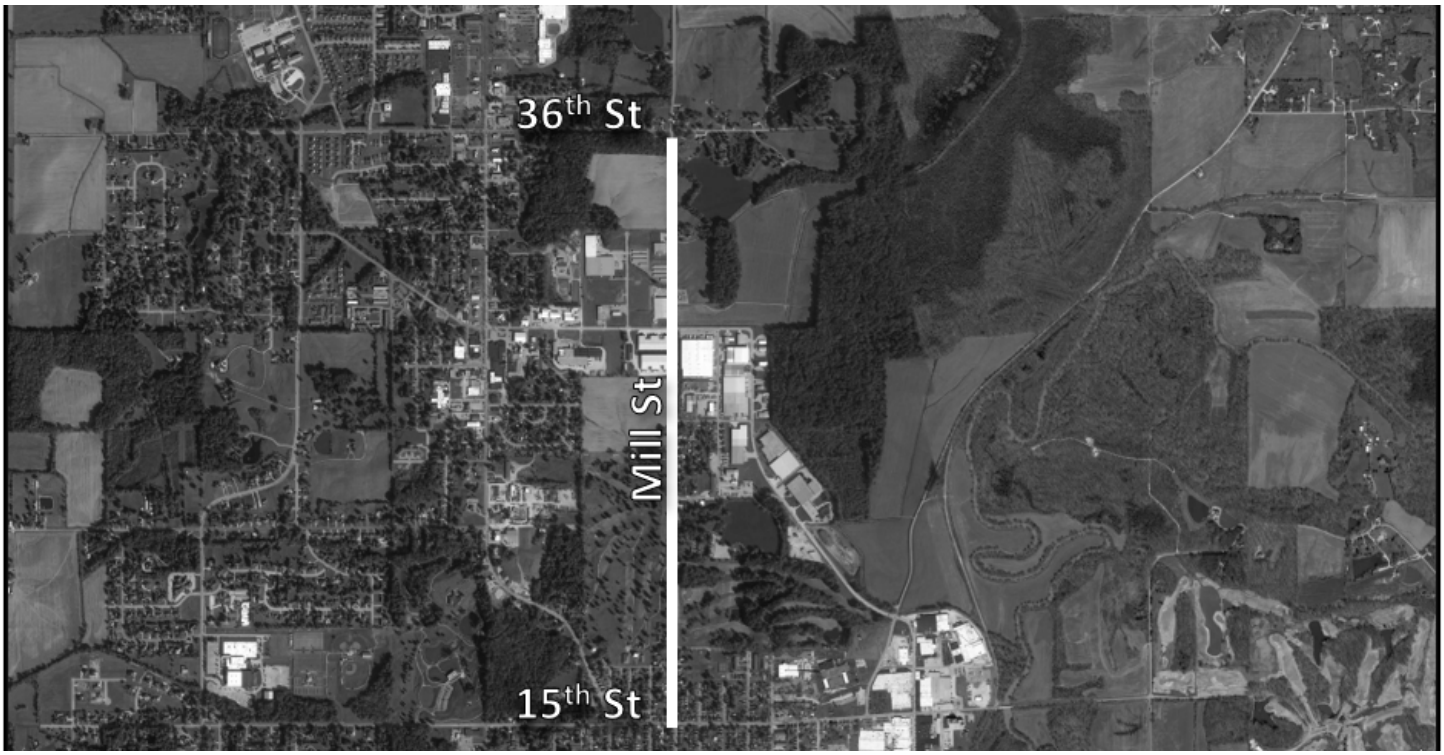


Map 1-8. Recommended Roadway Improvements

1) Mill St from 15th to 36th

N

Not to Scale



Issue

Volume is anticipated to increase on this existing north-south connector road, providing relief to the US 231 corridor and accommodating future growth of the City, particularly trucks to and from the industrial areas on the east side of the City. Geometry and the cross-section are not ideal for the anticipated increase in trucks.

Solution

Improve the cross-section to include shoulders where feasible and add an adjacent Shared Use Path on the west side of the road from the existing trail head north to 36th Street. Correct ADA non-compliance along existing sidewalks.

Estimated Cost

Estimated Cost: $5 Million+

Priority Level

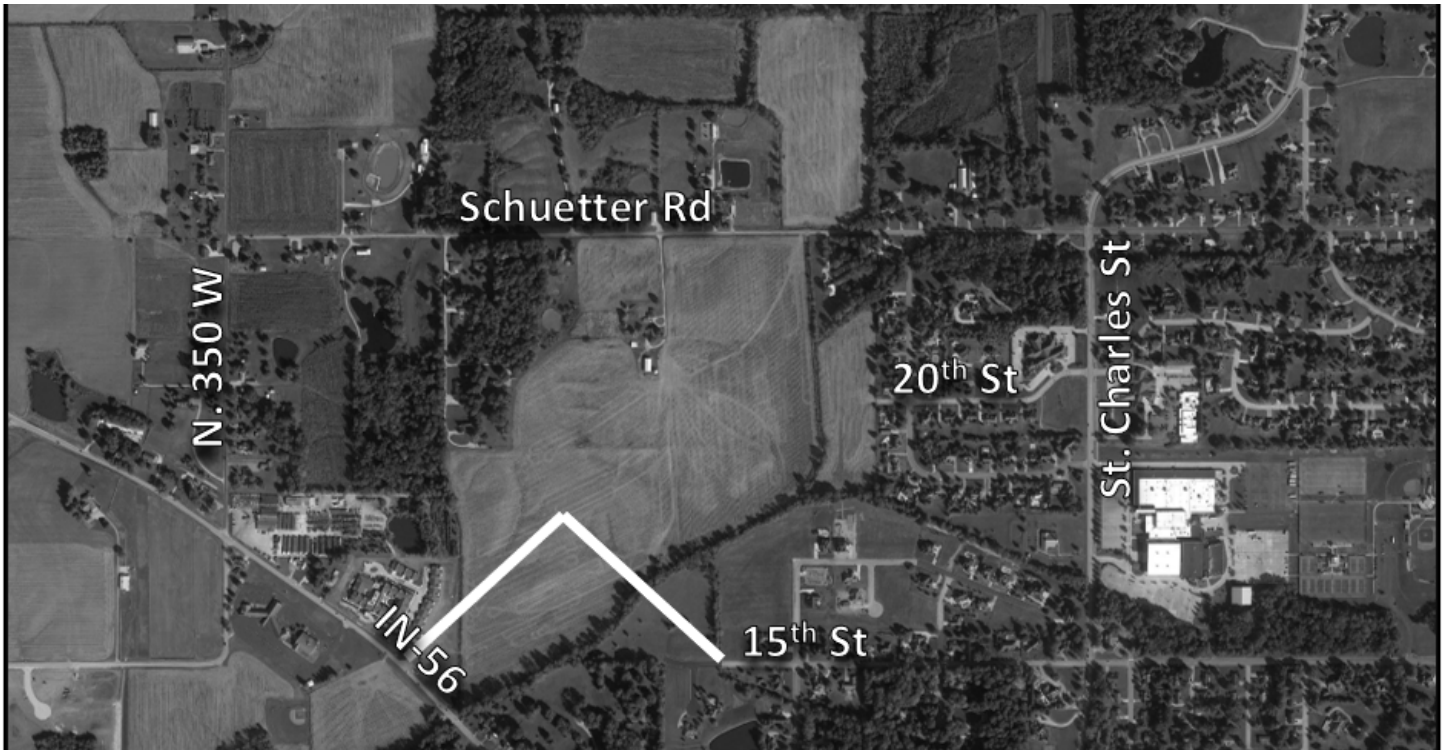
High

Goals

2) 15th Street Extension

N

Not to Scale



Issue

The SR 56 corridor leads to the heavily traveled US 231 and has seen growth in recent years as I-69 was constructed. The City expects development in this area, with a desire to extend an efficient multi-modal local grid network connectivity, rather than relying on parcel level access to the primary arterial network.

Solution

Extending 15th Street to SR 56 provides more direct access to the high school and other destinations for residents in the west areas of the City. This improves multi-modal connectivity, rather than limiting the network with cul-de-sacs. It sets up future growth of the urban area to the west and helps disperse traffic load.

Estimated Cost

Estimated Cost: $5 Million+

Priority Level

High

Goals

3) 36th & St. Charles

N

Not to Scale

Issue

Unacceptable driver delay, particularly in the morning peak hour when school traffic is highest. Afternoon peak also demonstrates intersection is nearing capacity. Multiple lanes at an all-way stop contributes to driver confusion on who goes next, causing even longer delays and potential safety concerns.

Solution

Convert this all-way stop to a roundabout, the design of which should:

1. Be suitable for buses to easily maneuver through, and
2. Accommodate non-motorized modes of transportation.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

High

Goals

4) Home Depot Access Road

N

Not to Scale

Issue

There is a lack of connectivity between retail uses along US 231 and Mill Street, adding to the traffic burden of US 231. There is currently no multi-modal connectivity in this area of the City.

Solution

Provide relief to US 231 by extending an east-west connector north of what is currently Home Depot. This should accommodate bicyclists and pedestrians as well, providing easy multi-modal access between downtown and these popular retail establishments along an extended Mill Street trail.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

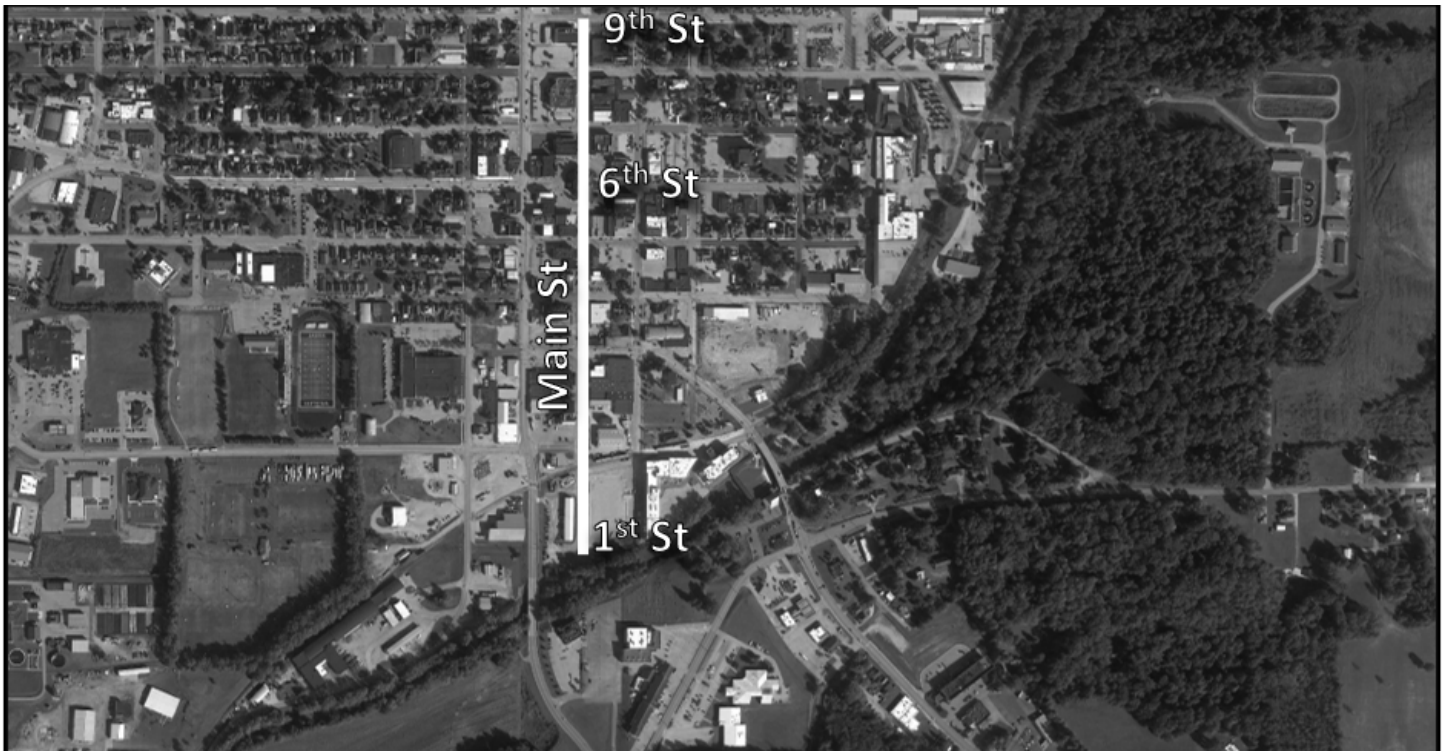
High

Goals

5) Main Street from 1st to 9th

N

Not to Scale



Issue

There is lack of bicycle and pedestrian connectivity between the courthouse and the river. The segment is very vehicle-focused. No pedestrian facilities exist at the crossing of 3rd Street.

Solution

Implement complete streets concepts from the Downtown Plan along the corridor. Create a focal point on the north bank visible from the courthouse, and extend two paths (one ADA accessible, one natural surface amongst the trees) along the riverfront to connect Main Street and farmers market area to the existing pedestrian bridge.

Estimated Cost

Estimated Cost: $5 Million+

Priority Level

High

Goals

6) E 6th from Courthouse to Mill

N

Not to Scale

Issue

The wide cross-section is too accommodating for vehicles, resulting in speeding, and high stress conditions for pedestrians and bicyclists.

Solution

Fulfill the Downtown Plan by implementing complete streets concepts along this segment. Wider sidewalks and bicycle facilities have proven to attract businesses and customers to downtown areas. Reduce the speed through downtown.

Estimated Cost

Estimated Cost: $250k - $1 Million

Priority Level

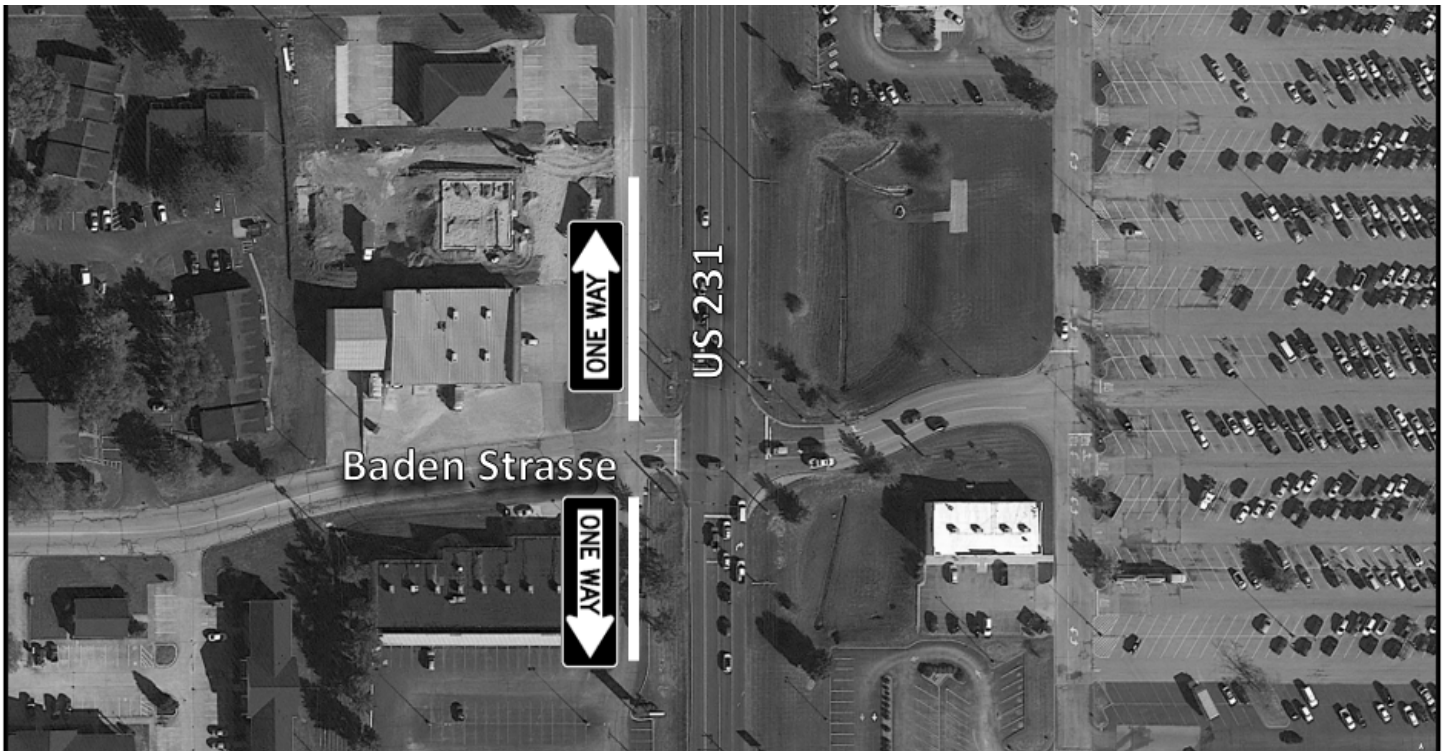
High

Goals

7) US 231 & Baden Strasse

N

Not to Scale



Issue

Close proximity of the frontage road to US 231 causes driver confusion and frequent near misses and reduces the effectiveness of the signal to serve Baden Strasse. If frontage road is blocked along Baden Strasse, it creates a potential safety hazard for northbound left turns from US 231 turning onto Baden Strasse.

Solution

In the frontage road blocks closest to Baden Strasse, implement one-way circulation. Remainder of frontage road beyond this closest block can remain two-way. This increases the spacing between the access from the shopping centers and the signal, creating a safer condition and smoother, more efficient, signal operations.

Estimated Cost

Estimated Cost: $250k - $1 Million

Priority Level

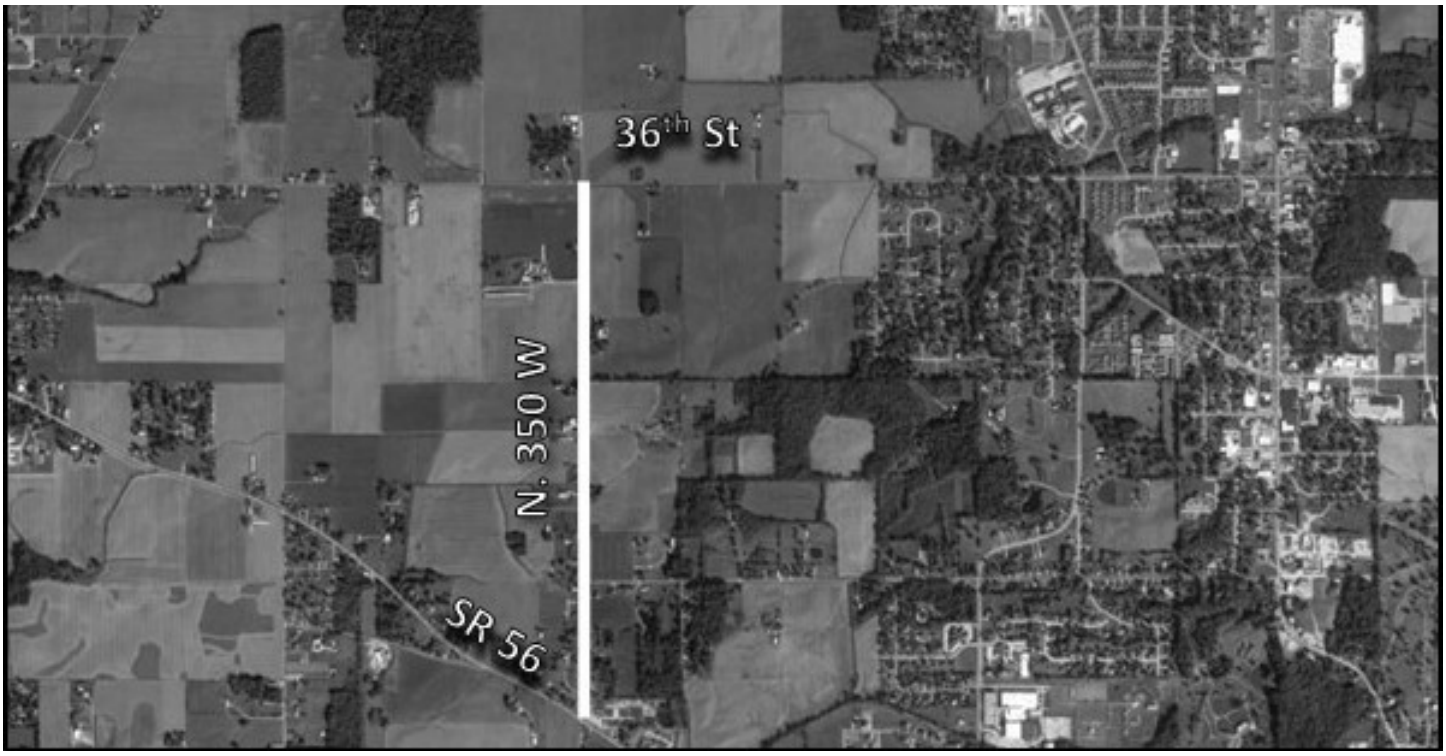
High

Goals

8) N 350 W from SR 56 to 36th

N

Not to Scale



Issue

Volume is anticipated to increase on this existing north-south connector road, providing relief to the US 231 corridor and accommodating future growth of the City. It currently has vertical curvature concerns and has little to no shoulder, which is recommended for the amount of anticipated future traffic.

Solution

Improve roadway cross-section to accommodate higher traffic and truck volume. Plan, coordinate, and manage the number of future access points on this road by following INDOT Access Management requirements for intersection spacing.

Estimated Cost

Estimated Cost: $5 Million+

Priority Level

Med

Goals

9) Jackson Street from 3rd to 15th

N

Not to Scale

Issue

One-way pairs reduce opportunities for circulation, particularly with bicycles, and lead to wrong-way cycling. Studies have proven that one-way vehicle operations reduce access to businesses, resulting in negatively impacting the economic prosperity and operations of those businesses.

Solution

From 3rd to 7th, convert the existing 38' cross-section to one 11' travel lane and 8' on-street parking for each direction. From 7th to 15th, parking would either need to be eliminated from one side of the road, or the road may operate as a yield street. Crosswalks should be clearly marked, and stop signs installed per MUTCD guidance. Adjust the north leg at 3rd Ave to be one lane in each direction. Eastbound left turns at 3rd can be installed, but operate with protected arrow only due to sight lines.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

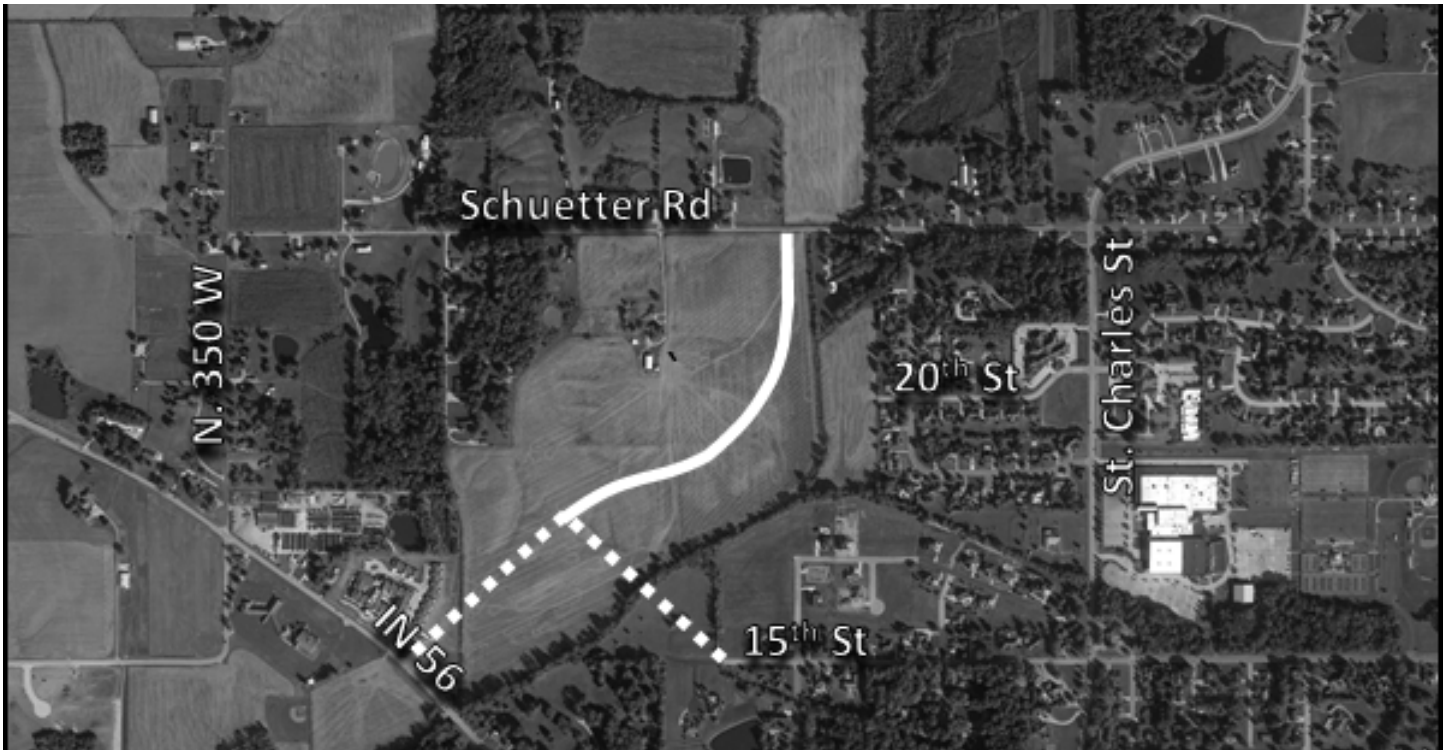
Med

Goals

10) North/South Connector

N

Not to Scale



Issue

The SR 56 corridor leads to the heavily traveled US 231. It has seen growth in recent years as I-69 was constructed. The City expects development in this area, with a desire to extend an efficient multi-modal local grid network connectivity, rather than relying on parcel level access to the primary arterial network.

Solution

15th Street Extension to SR 56 would be built prior to this improvement. This connector road would provide access to Schuetter Road, giving future residents options in their route of travel, rather than adding more volume than necessary to heavily-traveled SR 56.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

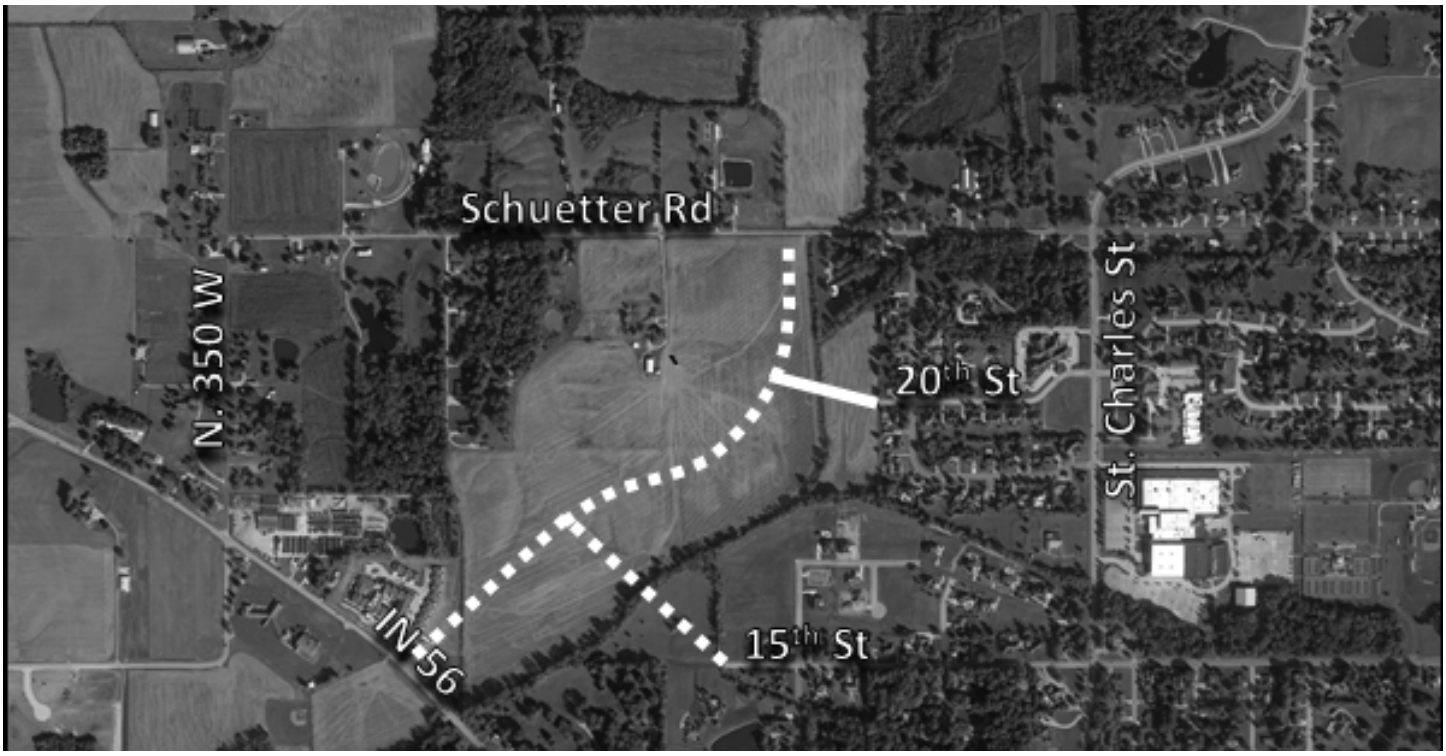
Med

Goals

11) 20th Street Extension

N

Not to Scale



Issue

The SR 56 corridor leads to the heavily traveled US 231 and has seen growth in recent years as I-69 was constructed. The City expects development in this area, with a desire to extend an efficient multi-modal local grid network connectivity, rather than relying on parcel level access to the primary arterial network.

Solution

15th Street Extension to SR 56 and north-south connector would be built prior to this improvement. Continue building out the grid network that is accessible for all modes of travel, providing easier and safer access than relying on heavily-traveled SR 56.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

Med

Goals

12) Extend 28th Street to St. Charles St

N

Not to Scale

Issue

The lack of grid network in this area requires residents and businesses to be highly dependent on unsignalized access along heavily-traveled US 231.

Solution

Extend 28th Street to connect the grid, which is the most efficient road network possible giving drivers' options when deciding their route of travel. This helps reduce traffic and conflicts on US 231. A multi-modal connection can provide access between the existing trail along St. Charles St and the neighborhood near Howard Drive, allowing children an off-street path to bicycle or walk to school.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

Med

Goals

13) Mill Street from 4th to 15th

N

Not to Scale

Issue

One-way pairs reduce opportunities for circulation, particularly with bicycles, and lead to wrong-way cycling. Studies have proven that one-way vehicle operations reduce access to businesses, resulting in negatively impacting the economy and operations of those businesses.

Solution

From 4th to 9th, convert the existing 43-44' road cross-section to an 8' parking lane, 7' buffered bike lane, one 11' northbound travel lane, one 11' southbound travel lane, and a 6-7' buffered bike lane. From 9th to 15th, the cross section should be one northbound vehicle lane with shared bicycle lane symbol, one northbound parking lane on the east side, and a southbound contra-flow bicycle lane on west side to keep the two-way bicycle network in tact from 4th to 47th Street. The segment from 3rd to 4th should remain one-way northbound. Stop control on Mill St should be considered at 6th, 9th, 12th, and 15th Streets. Clearly mark all pedestrian crosswalks.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

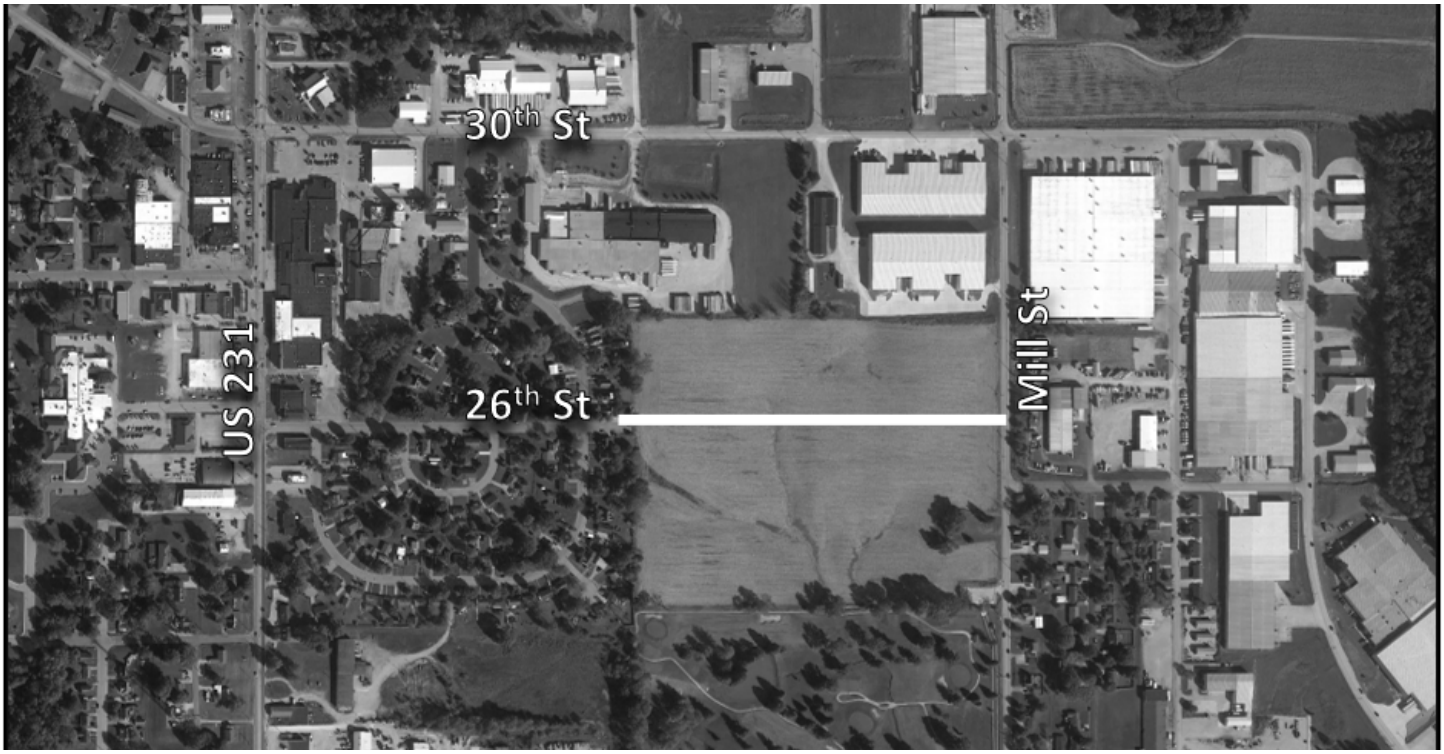
Low

Goals

14) Extend 26th Street to Mill Street

N

Not to Scale



Issue

There is a lack of connectivity between neighborhoods adjacent to US 231 and Mill Street due to the golf course and undeveloped land, adding to the traffic burden of US 231.

Solution

Extend 26th Street to Mill Street, giving residents easier multi-modal access to the nearby trail head on Mill Street as well as downtown. This helps reduce traffic and conflicts on US 231. It also ensures that future development of this parcel will not be subject to access only to Mill Street.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

Low

Goals

15) 15th & St. Charles

N

Not to Scale

Issue

Unacceptable driver delay and queuing, particularly in the morning peak hour. Multiple lanes at an all-way stop contributes to driver confusion on who goes next, causing even longer delays and potential safety concerns.

Solution

Convert this all-way stop to a roundabout, the design of which should:

1. Be suitable for buses and trucks under 10 tons to easily maneuver through, and
2. Accommodate non-motorized modes of transportation.

Estimated Cost

Estimated Cost: $1-3 Million

Priority Level

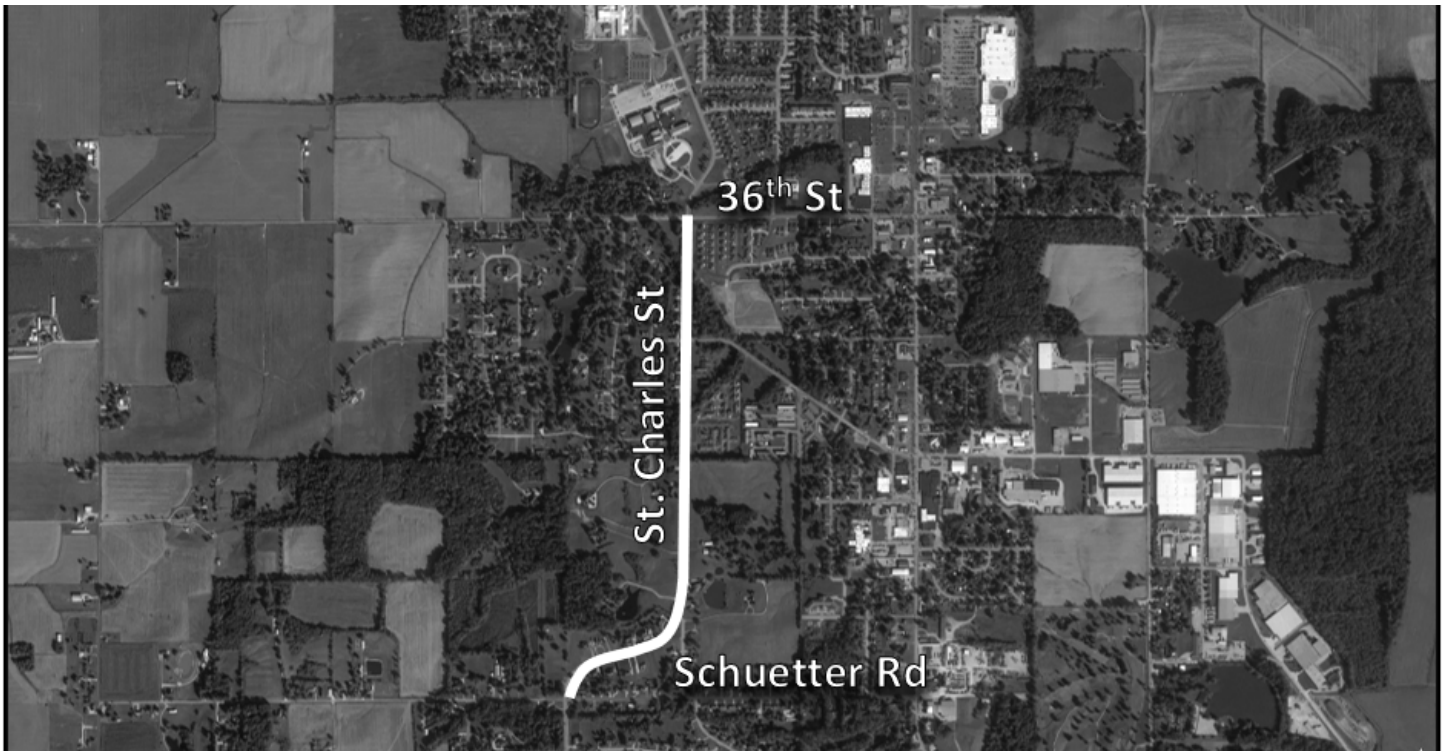
Low

Goals

16) St. Charles from Schuetter to 36th

N

Not to Scale



Issue

Speeding along St. Charles is leading to crashes along the 'S'-curve on the south end of the segment. St. Charles Street carries more volume than is desired due to capacity constraints along the parallel north-south route of US 231.

Solution

Implement traffic calming measures along the segment. It is recommended to be converted to a boulevard, with a center landscaped median dividing the north and southbound lanes. Alternatively, reduce to a two-lane segment, splitting the remaining pavement cross-section to provide on-street bike lanes in each direction.

Estimated Cost

Estimate depends on selected solution.

Priority Level

Low

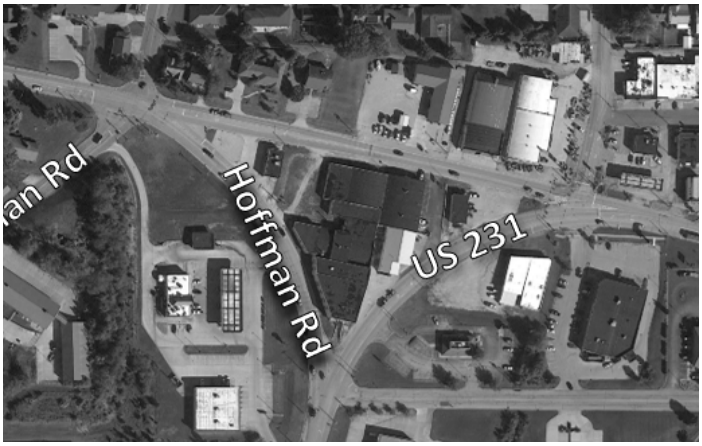
Goals

Other Recommendations and Facilities

Two additional projects were suggested during the preparation of this plan, and are described below. The Festival Street would be something to consider at the time that complete streets projects were implemented Downtown in and around the Courthouse. The 'Y' Study would require INDOT support and input since this the confluence of two major state highways, though the City should be involved in any study of this intersection for input and guidance on future land use decisions.

The City has decided to not move forward with these recommendations at this time, but may reconsider at a later date.

'Y' Intersection Study



Issue

Configuration is confusing for non-locals traveling on US 231, and an excess of access points along horizontal curves with little intersection control leads to safety concerns and poor operations.

Solution

Coordinate a study of the 'Y' operations, sight distance, and nearby transportation neighborhood network connectivity. Determine if better land use would be suitable for parcels within the 'Y' space.

6th Street 'Festival Street'

Issue

Predominant traffic movements at this intersection consist of eastbound left turns and southbound right turns, following US 231. Drivers use 6th Street through the Courthouse area as a cut-through. The Downtown plan for Jasper calls for the area around the Courthouse to be more bicycle and pedestrian friendly.

Solution

Remove the east leg to create a 'T'-intersection at 6th St/Newton St/US 231, simplifying signal operations and reducing delay. Create a curbless urban "festival street" that accommodates pedestrians, bicyclists, outdoor dining such as cafe tables, etc. The design could allow westbound emergency vehicles, if desired.

47th Street Upgrades

Issue

Volume is anticipated to increase on this existing east-west connector road to accommodate future growth of the City, particularly trucks. Geometry and the cross-section are not ideal for the anticipated increase in truck and multi-modal traffic.

Solution

From US231 to Portersville Rd, improve the cross-section to include shoulders where feasible and add an adjacent Shared Use Path on the south side of the road as indicated in the multi-modal plan.

Evaluation

Performance management techniques promote informed decision making by relating community goals to the measurable effects of public investments. Key steps in performance management are to decide what to measure in order to capture the current state of the system, to set targets to improve those measures, and to use the measures to evaluate and compare the effects of proposed projects and policies. The goals identified in the Impact Jasper Comprehensive Plan serve as the basis for the performance measures. Performance measures should be monitored over time to track the community's progress towards achieving the Plan's goals. As recommendations are implemented and projects come online, improvements in key performance indicators should be realized.

Performance measures are provided for each Plan goal and include the objective, strategy, and performance measure. Numerous measures are available through public sources. Others reflect information collected by the City of Jasper (i.e., sales tax receipts) and some require professional planning staff with GIS capabilities to calculate (i.e., miles of bicycle facilities). A commitment to ongoing monitoring places the region in compliance with federal transportation planning guidelines, and is advantageous when seeking funding for projects.

To achieve these goals, the following objectives are recommended with correlated performance measures to be evaluated annually:

Safety: Create a safe transportation system that strives to end traffic deaths and prevent serious injuries.

Objective	Performance Measure	Data Source
Reduce the number of crashes	Improve visibility through improved lighting, striping, signage, visibility triangles, and access control	Total Number of Crash, Crash Type, Crash Locations
	Increase enforcement in priority safety areas (e.g. Click It or Ticket/Distracted Driving)	No. and Duration of Safety Awareness Programs
	Prepare and submit applications for Highway Safety Program funding	No. of HSTP submittals, No. of projects funded
Eliminate traffic fatalities and serious injuries	Prioritize funding for projects that address safety issues or are located on high crash corridors	Rate of Fatalities per 100 MVMT, Total Number of Fatalities, Rate of Serious Injuries per 100 MVMT, Total Number of Serious Injuries, Total of Non-Motorized Crashes resulting in fatalities and injuries
	Adopt a Vision Zero Strategy	Strategy Adopted
	Use design as a tool to support and enforce pedestrian right-of-way at intersections and crosswalks	No. of crosswalk/intersection improvements implemented
	Identify high-risk roadway features and develop templates to simplify consistent safety redesigns	Features ID's and redesigns implemented
	Evaluate roadway reconstruction project for multi-modal safety needs and opportunities at project inception	No. of reconstruction projects annually, no. that include safety improvements
Reduce modal conflicts	Encourage the development of safety education programs to inform the public of bicycle/pedestrian rules and regulations	Bike Safety Programs, Frequency, Duration
	Reduce physical obstructions/barriers that impede safe bicycle/pedestrian travel	Barriers removed annually and type
	Increase pedestrian signal crossing time	No. of signals with crossing times increased, Percent of total signals
	Where feasible, utilize railroad right-of-way, levees, and parkways for alternative transportation routes to avoid traffic conflict, including adequate grade separation at intersections	No. and Miles of off road multi-modal projects completed
	Utilizing established evaluation criteria, identify “bicycle friendly” streets that will accommodate on-road bicycle travel	Miles of bike friendly streets as percent of network
Eliminate system vulnerability to risks and hazards	Prioritize transportation infrastructure projects that protect key facilities and services	No. of projects that protect key facilities and services
	Emphasize mitigation techniques during new and renovation construction of critical facilities	No. of mitigation techniques applied to projects
	Whenever possible, implement green infrastructure to reduce or minimize stormwater issues and flooding	No. of projects with green infrastructure. Gallons of stormwater removed/diverted from sewer system

Mobility: Create an equitable transportation network that provides all residents with access to mobility choices that are affordable, safe, and efficient.

Objective	Strategy	Performance Measure
Increase the options for alternative modes of transportation	Conduct a transit/micro-transit feasibility study	Study completed
	Explore ride-sharing and car sharing services	Number of types of services explored
	Provide incentives for alternative commuting	Incentives offered
	Identify locations of commuter park and ride facilities	No. of potential sites identified
	Coordinate with major employers to establish vanpools	No. of vanpools established
	Implement standardized wayfinding throughout Jasper	Wayfinding installed and maintained annually
	Encourage tele-work whenever possible through marketing and education	No. and type of tele-working promotions
Improve transportation access for the transportation disadvantaged including the elderly and low-income residents and people with disabilities	Conduct a parking study for Downtown Jasper	Study completed
	Encourage shared parking agreements, especially in Downtown Jasper	No. of shared parking agreements
	Prioritize bicycle and pedestrian improvements in environmental justice zones	Miles of bikeways and sidewalks in environmental justice zones
	Complete recommendations from the Jasper ADA Transition Plan	No. and percent of projects completed
	Improve parking enforcement (cars ticketed for parking or idling in bike lanes), especially in downtown Jasper	No. and frequency of parking violations reported
	Create and adopt ordinances for the removal of snow and ice from sidewalks, bikeways, and driveway entrances	Ordinance adopted
	Support training programs for disability sensitivity	Training programs supported or offered
Reduce automobile dependency	Prioritize bicycle and pedestrian infrastructure at major destinations	Miles of bikeways and sidewalks within 1/4 mile of major destinations
	Encourage medium-density mixed use development to increase access to the number and variety of services within active travel distances	Acres of new mixed use and medium density development

**In addition to objectives and strategies recommended in the Bicycle Plan.*

Reliability: Ensure that the transportation system is reliable, efficient, and well maintained.

Objective	Strategy	Performance Measure
Manage the transportation system efficiently	Implement a Dig Once policy	Adopt Dig Once policy
	Increase investments in ITS to better manage traffic incidents, special events, construction, and logistics	Number of projects using latest technologies (Intelligent Transportation Systems) to improve system capacity and efficiency
Reduce transportation demand	Coordinate land use development and transportation	Reduction in land used for new projects
	Increase access to high speed internet to residents across the City of Jasper	No. of residences with access to high speed internet
Improve system capacity as needed	Plan for efficient system expansion as needed to support anticipated travel demand	System congestion and delay
	Address system capacity constraints and operational bottlenecks through system expansion when necessary	Study road inventory to provide a reduction in bottlenecks
Reduce the cost of roadway maintenance	Improve engineering and design standards for road design and construction	Coordinate design standards with State and ADA design standards
	Develop a citywide asset management plan	Plan developed
	Educate municipalities and individuals about the benefits of Road Diets	No. of meeting, promotional materials, and public surveys
	Encourage non-motorized travel, transit, and carpooling	Implement recommendation of this plan
	Explore public-private partnerships (P3s) to address infrastructure and funding deficiencies	No. of public-private partnerships established
	Prioritize funding for regionally significant projects and programs	Develop a list of high priority projects
	Coordinate utility upgrades with transportation infrastructure upgrades	No. and frequency of coordination meetings with utilities to align projects
	Promote regional coordination through the use of mutual-aid agreements	No. of agreement established iwth outside entities
Improve Traffic Flow	Implement traffic circles and roundabouts at intersections	No. of traffic circle projects completed
	Synchronize traffic signals to improve the movement of traffic	No. of traffic signals coordinated
	Adopt access management policy	Policy adopted
	Increase investments in ITS to better manage traffic incidents, special events, construction, and logistics	Number of projects using latest technologies (Intelligent Transportation Systems) to improve system capacity and efficiency

Livability: Encourage transportation solutions that promote community health, economic activity, and ecosystem vitality.

Objective	Performance Measure	Data Source
Promote the efficient movement of people and goods by linking the various modes of transportation	Maintain or improve the current farm-to-market road system and ensure they are not being degraded at a faster than normal pace	Reduction of trucks on farm-to-market road system
	Explore policies to support integration of autonomous vehicles	Adoption of autonomous vehicle policies
	Study drone delivery solutions	Adoption of drone delivery study
	Explore and implement curb management policy to improve first-last mile service	Reduction in distance between first/last stop to destination
Focus system improvements to support and promote tourism	Provide comfort stations at destinations and attractions	No. of comfort stations
	Provide bicycle and sidewalk accommodations at destinations and attractions	No. of bicycle and sidewalk accommodations
	Ensure attractions are ADA accessible	No. of ADA compliant locations
Reduce transportation cost burden for Jasper residence	Favor policies and projects that encourage greater fuel efficiency	No. of fuel efficient vehicles
	Support projects that improve commute options for disadvantaged workers	No. and availability of commute options
	Provide transportation mode choices including public transit, bicycling, walking, and ridesharing	Reduction in household commuting cost
Reduce reliance on fossil fuels in transportation	Encourage public agencies and businesses to install Electric Vehicle Charging Stations at their parking facilities	No. of electric vehicles charging stations installed
	Encourage public entities to install LED street and parking lot lighting	No. of LED lights installed
Minimize negative impacts to the environment	Avoid sensitive environmental features and identifying relevant mitigation measure when possible and feasible	Identify and protect environmentally sensitive areas
	Use recycled materials in road construction	Reduction in construction waste
	Construct noise barriers where appropriate to prevent noise pollution in neighborhoods	Reduction in noise pollution
	Encourage the installation of International Dark Sky Association compliant light features in new roadway projects	No. of Dark Sky Association features installed
Improve water quality	Minimize land disturbance during construction, particularly on steep slopes	Reduction in acres disturbed
	Aim for zero run-off from road projects by utilizing best management practices (BMP's)	Track BMP violations
	Reduce the water quality impacts of herbicide, de-icing, and other chemical agents used for road maintenance	Establish use of environmentally friendly products

Connectivity: Provide a transportation network connects neighborhoods to places of employment, education, goods, and services.

Objective	Strategy	Performance Measure
Support an integrated transportation system	Explore pedestrian connections to nearby streets where cul-de-sacs are present	No. of pedestrian throughways opportunities identified/established
	Develop a connectivity index	Index developed
	Employ a connectivity index in all development review decisions	Percent of development reviews which include index evaluations
	Encourage a grid-network of transportation infrastructure in all future subdivision development	New subdivisions without cul-de-sacs
	Support state and local regulations that promote multi-modal use	No. and type of regulation supported
Coordinate with other Jurisdictions	Coordinate with local healthcare providers and the Dubois County Health Department to provide bike and walking incentives	No. and frequency of coordination meetings, incentives developed, incentives offered
	Coordinate with other transportation agencies and adjacent communities and counties for the extension of existing and planned arterial and collectors	No. and frequency of coordination meetings
	Examine the potential of a coordination of public, private, and university transit systems	Study complete
	Coordinate with Dubois County and nearby communities to promote development along existing and planned infrastructure	Intergovernmental agreement adopted
Encourage new development to include multi-modal facilities and accommodations	Provide development incentives for buildings to include bicycle and pedestrian amenities	Incentives developed, incentives offered
	Dedicate a percent of development fees to bicycle facilities (similar to Percent for the Arts[1] ordinances championed by the National Endowment for the Arts)	Amount of fees generated, facilities provided

1 *https://www.americansforthearts.org/by-program/reports-and-data/legislation-policy/naappd/percent-for-art-ordinances*

Cost Estimates

Planning level opinions of probable cost were estimated for the recommended roadway projects. The costs were placed into the following five general cost ranges for roadway projects:

For all projects but two, these prices were based on past experience with comparable engineering projects. Several of the short "connector" projects may have reduced land acquisition costs, as their incorporation into the network may be negotiated with a developer. These costs do not reflect any land acquisition or utility relocations.

The 15th Street Extension and Mill Street Improvements from 15th to 36th Streets were identified by the City as special topics needing early attention. Concepts and a preliminary environmental screening assessment was completed, and itemized preliminary costs based on those concepts was projected. These special topics are included in **Appendix C**.

Implementation

Funding

The funding for the Jasper Multi-modal Transportation Plan can be estimated based on the following assumptions:

- The City of Jasper is expected to continue to receive additional funds from the recently increased gasoline tax.
- The City of Jasper will continue to be eligible to submit grant applications for federal programs including Highway Safety Improvement Program and National Highway Performance Program.
- The City of Jasper can collect additional revenue through Wheel Tax and Excise Surtax. Indiana Local Technical Assistance Program estimated that maximum revenue from these taxes for Dubois County would be approximately $3 million per year.
- Public Private Partnerships (PPP) - The private sector, such as developers and business associations, often supports transportation projects through impact fees, right-of-way donations, and cost sharing. Developing public-private partnership will help to finance the projects identified in the transportation plan.

Assuming the revenue and expenditure will remain consistent over the plan period, the total amount available for capital improvements over the next 20 years is anticipated to be $223,927. This was calculated assuming a 1.9% annual inflation rate (average rate of inflation in the United States over the past 10 years). If those funds were only used to match federal grants at 20%, they could be leveraged to secure approximate $1,119,635 in capital improvements by 2040. In order to implement the projects identified in this plan, the City of Jasper will need to explore additional funding sources to supplement revenue from the City of Jasper's Local Road and Street Fund and Motor Vehicle Highway Account. To review the financial plan, see **Appendix D**.

Project Prioritization

Project prioritization is an essential part of the development of the Jasper Multi-modal Transportation Plan. A number of factors were used to develop the recommended list of priorities including alignment with the community vision, potential impact on the plan's goals and objectives, community feedback, and local priorities. For complete details on the analysis of community feedback and local priorities, see **Appendix E.**

The prioritizations were ranked High, Medium, and Low. High was defined as either implemented in the next five years, or for larger projects, begin to find or dedicate funding over the next five years for implementation within ten years. Medium priority would be defined as being implemented within ten to fifteen years, and Low having an implementation horizon of more than fifteen years.

Priority Rank	Project Name	Project Type	Estimated Cost
High	Mill St from 15th to 36th (Widen to accommodate more trucks, multi-modal path)	Corridor Improvement	
High	15th St Extension to SR 56	New Roadway	
High	36th & St. Charles (Convert to roundabout)	Intersection Improvement	
High	East-West Connector from US 231 to Mill St North of Home Depot	New Roadway	
High	Main Street from 1st to 9th (Create Complete Street)	Corridor Improvement	
High	E 6th from Courthouse Sq. to Mill St (Create Complete Street)	Corridor Improvement	
High	US 231 & Baden-Strasse/Walmart (Adjustments to frontage road on west side)	Intersection Improvement	
Med	N 350 W from Schuetter to 36th (Upgrade to carry increased future traffic)	Corridor Improvement	
Med	Jackson St from 3rd to 15th	One-Way Conversion	
Med	North-South Connector from 15th St Extension to Schuetter	New Roadway	
Med	20th St Extension	New Roadway	
Med	Extend 28th St to St. Charles (Extend dead-end streets)	New Roadway	
Low	Mill St from 4th to 15th	One-Way Conversion	
Low	Extend 26th St to Mill St	New Roadway	
Low	15th & St. Charles (Convert to roundabout)	Intersection Improvement	
Low	St. Charles from Schuetter to 36th (Convert to boulevard, reduce speeding) *	Corridor Improvement	

** Cost significantly depends on selected alternative.*

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