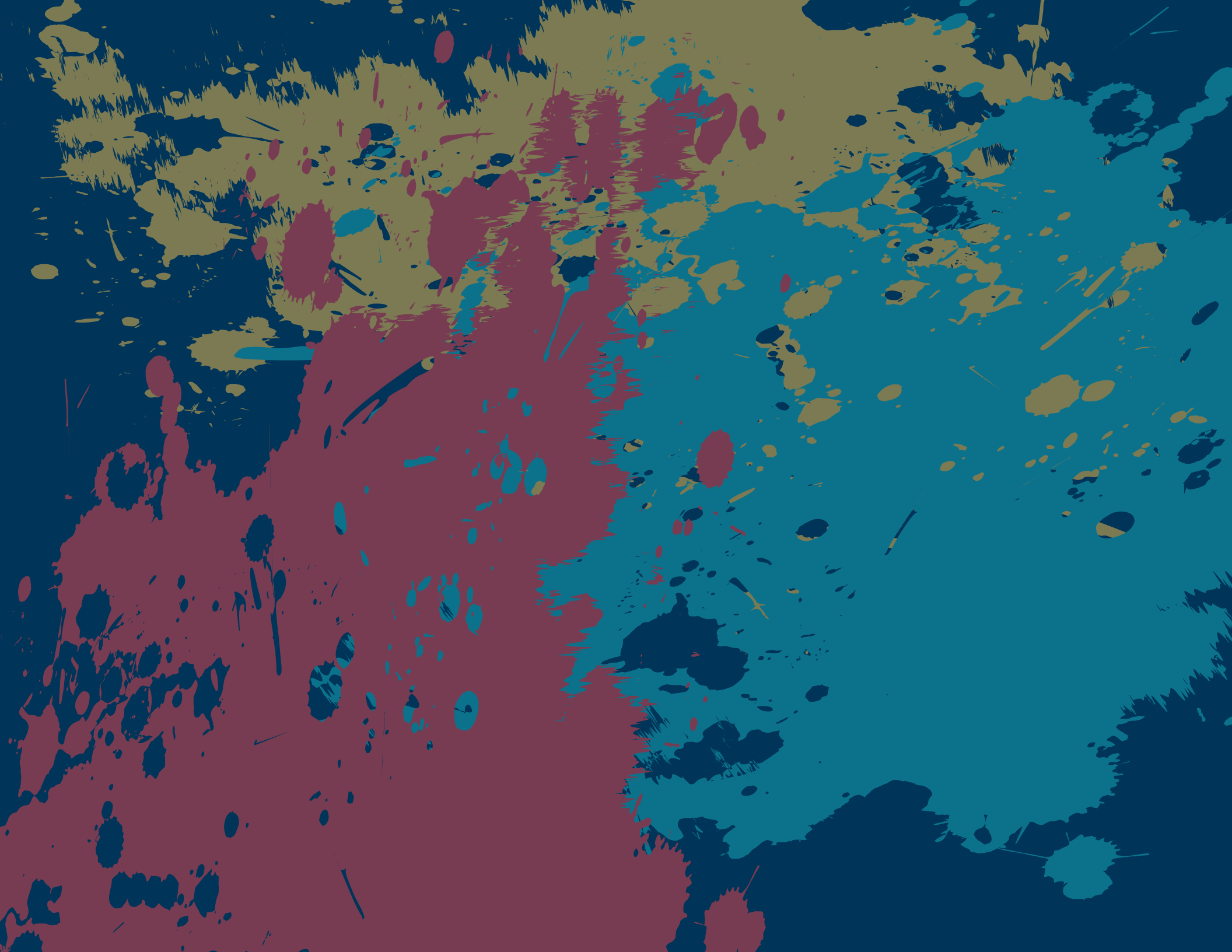




GREENSBURG BICYCLE AND PEDESTRIAN SYSTEM PLAN





EXECUTIVE SUMMARY

This plan, funded in part by a grant from the Indiana State Department of Health (ISDH), lays out a long-term vision for the installation of bike and pedestrian facilities across the City of Greensburg and identifies short-term projects and policies for advancing the system.

The plan includes several projects already shown in the City's 2021 Capital Improvement Plan and Program. It integrates them, existing facilities, and supplemental project proposals into a community-wide alternative transportation system, shown in the Vision Map.

A study review committee oversaw the process of developing the plan. The consulting team maintained frequent contact throughout the project with both the ISDH and the Indiana Department of Transportation (INDOT). Significant public outreach and engagement were throughout the planning processes, including multiple public meetings, an online survey made available to the public, interviews with community stakeholders and group leaders, and a review of the draft plan by city staff. This outreach concluded that most existing and potential resident users would use the system for recreational and exercise purposes, but that a significant number of people would use the system for shopping trips and regular commuting to work.

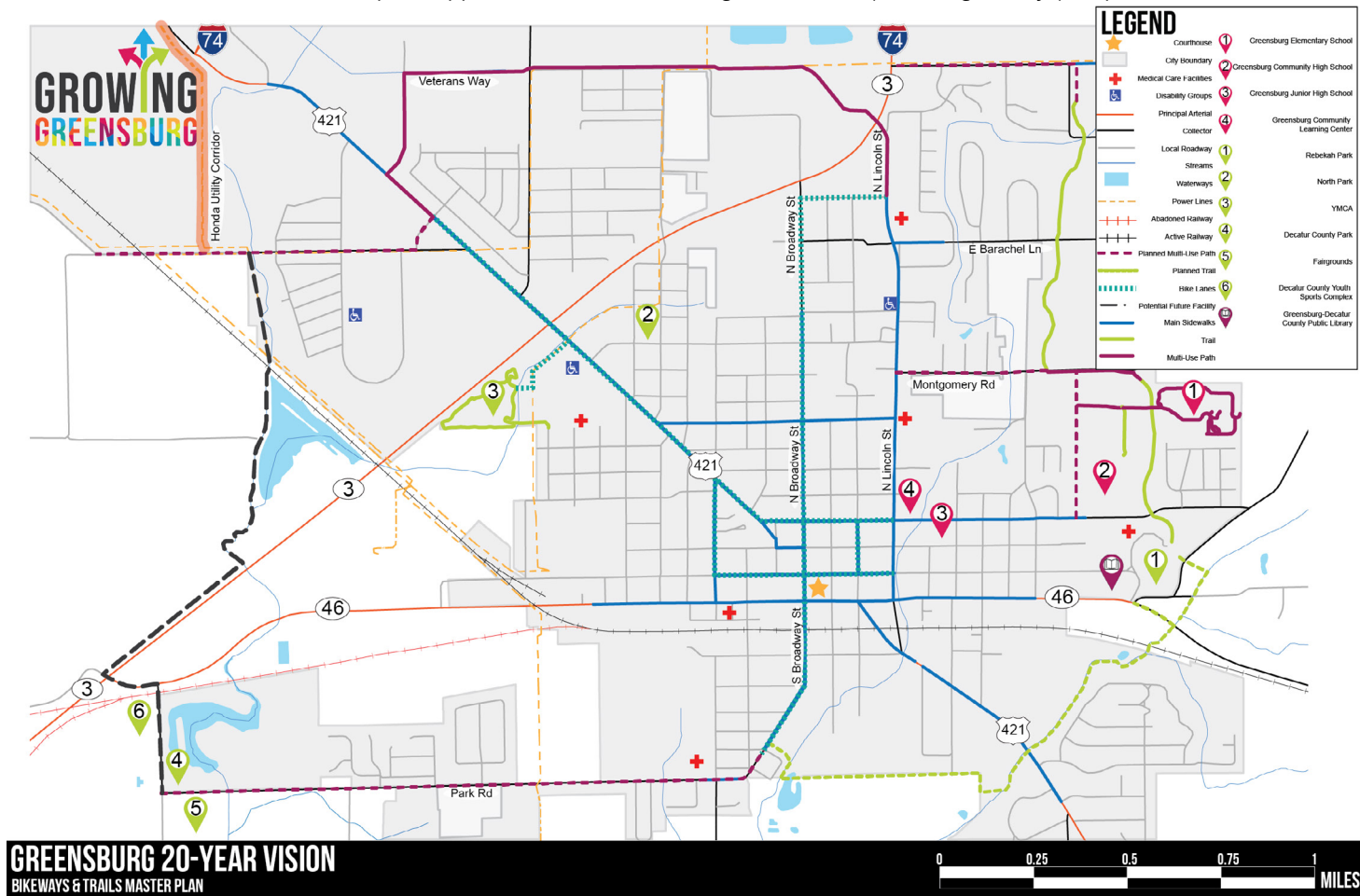
In addition to project recommendations, this plan outlines some supplemental actions, including:

- Developing a unified brand for the system to better market the community.
- Heightening the visibility of the system to the public via maps and wayfinding signage.
- Identifying supplemental infrastructure to encourage biking, such as bike parking, pedestrian crossings, and intersection redesign at several points along SR 3.
- Promoting the new system through community events, and partnering with the Decatur County Parks Department, YMCA, Fire Department, Scouts organizations, and local user groups.
- Increasing awareness through driver and biker education campaigns.

20-YEAR PLAN

VISION MAP

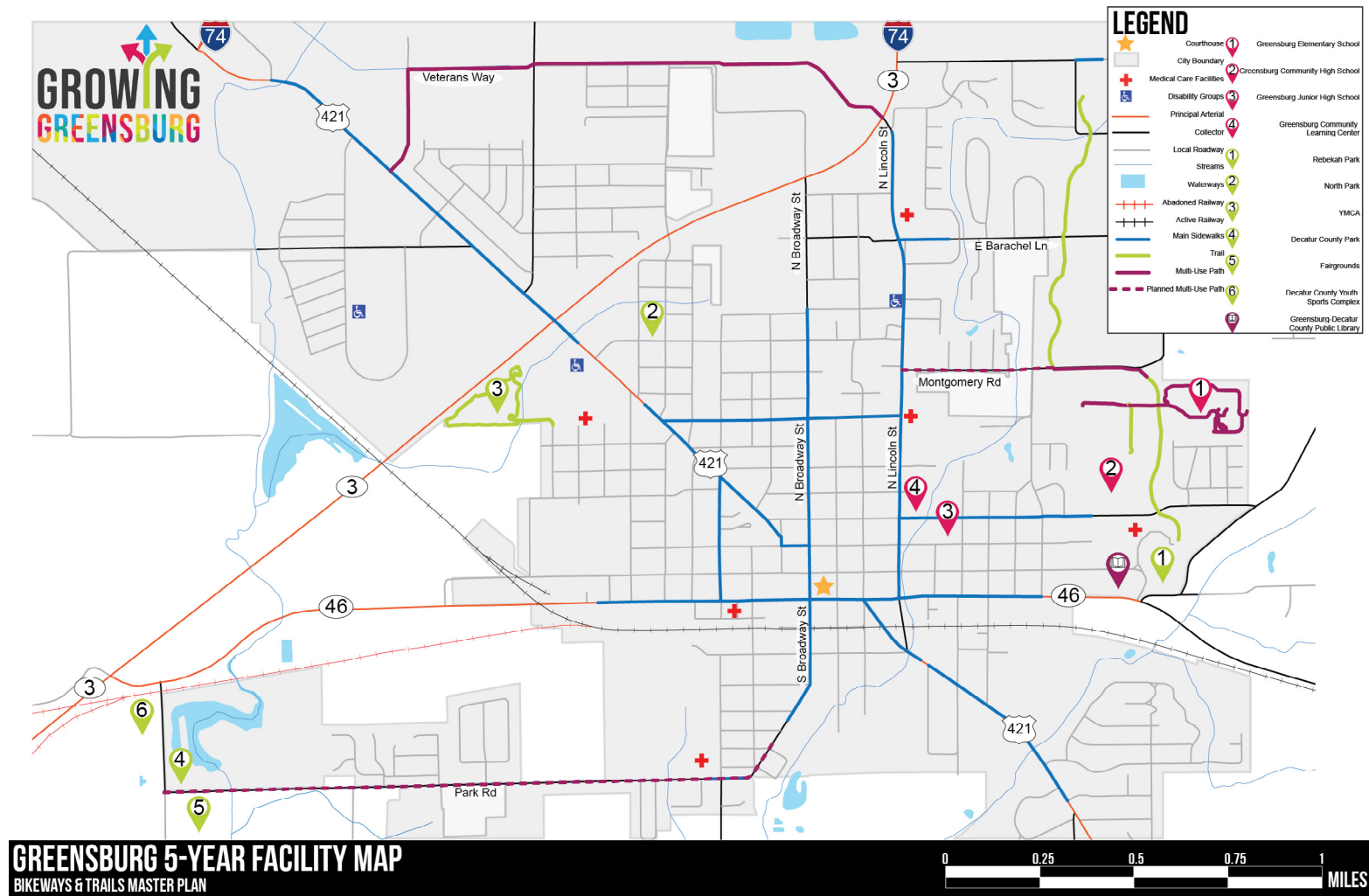
The long-term (20-year) vision, shown below, is a “hub-and-spoke” system centered on Downtown Greensburg, with the “hub” consisting of Veterans Way on the north side, Rebekah Trail on the east, Park Road, and Sand Run trails on the south, and an as-yet-to-be-determined facility on the west. The design ties local connections to the Honda plant and developed areas of the City. Sets of circular routes create options for recreational and fitness users. The system connects into all seven parks, including City Park, the YMCA, and the library. Transportation access to the Downtown and shopping areas along SR 3 is easy. The locations where the system crosses SR 3 and Main Street pose opportunities for urban design treatments (such as gateways) for possible consideration.



Proposed bicycle and pedestrian network in Greensburg. Source: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

FIVE-YEAR MAP

As shown below, the initial system is intended to be implemented over the next five years. Much of this timeline depends on finding a reliable funding source for implementing Park Road. In addition, the multi-use pathway along Montgomery was identified as a priority. Other actions include developing and promoting a recognizable community brand for the alternative transportation system and applying it to promotional signage efforts.



Existing paths and trails and infrastructure to be in place within five years in Greensburg. Source: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.



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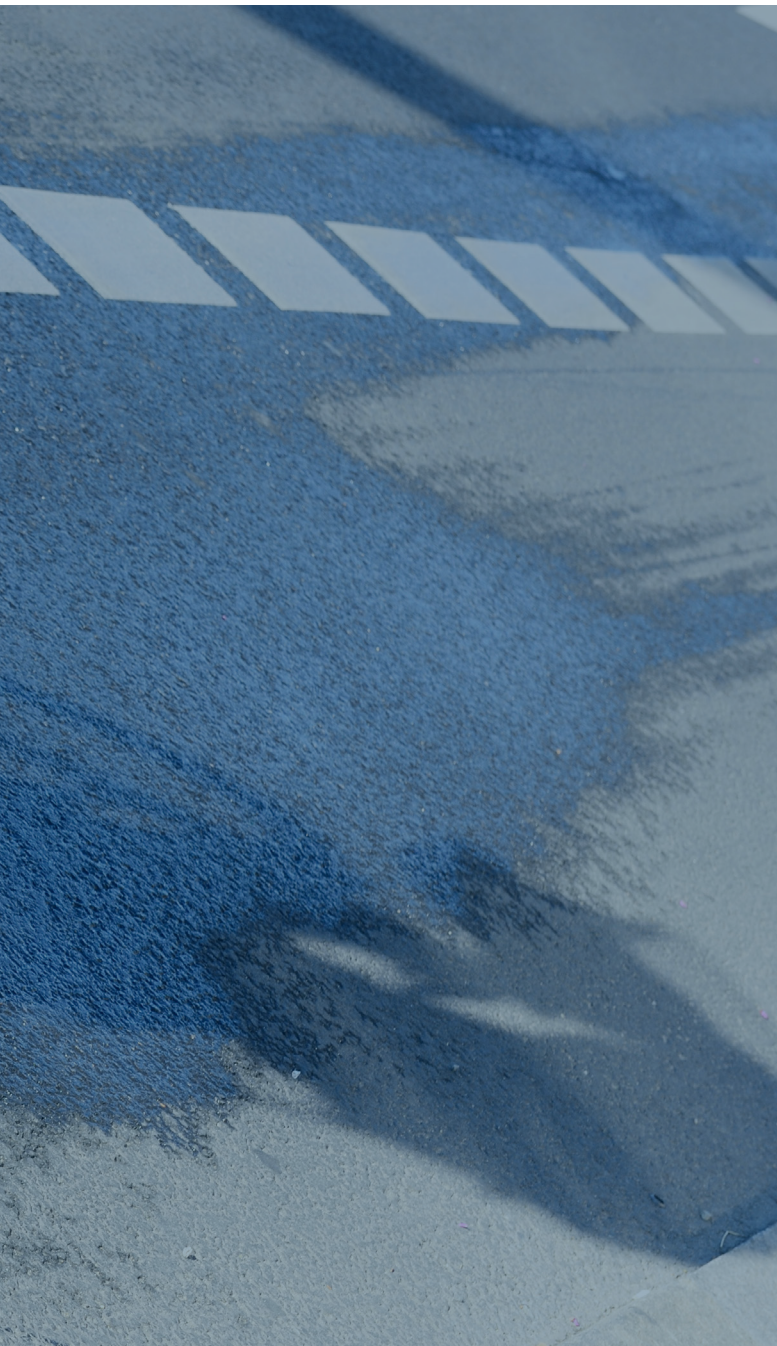
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INTRODUCTION

PLAN PURPOSE

In late 2014, an off-road multi-use path on the east side of Greensburg opened, the first such pathway initiated by the public in the City of Greensburg. The trail stretched from Rebekah Park north to the Greensburg School Corporation's Administration Building on Freeland Road, a total distance of 1.7 miles. This facility was the culmination of a decade-long collaboration between City officials, the School Corporation, and Decatur County staff. Such was its popularity that City residents started using it even before construction was officially complete.

Since that time, the presence of the Rebekah Park trail has spurred interest in further expanding alternative transportation facilities in and the community. For example, new sidewalks were included as a component of the Lincoln Street reconstruction project in 2018. The Veterans Way project currently nearing completion will result in an additional 1.7 miles of multi-use pathway adjacent to a motorway, connecting SR 3 at Lincoln Street to US 421/ Michigan Avenue. The City's 2021 Capital Improvements Plan and Program (CIPP) identified an additional off-road trail alongside the South Park and St. Mary's cemeteries to be implemented within the next five years. This trail would eventually connect to Rebekah Park via Sand Run creek. Multi-use pathways were also proposed along five roadways, including Park Road, Vandalia Road, Freeland Road, Montgomery Road, and Big Blue Road. When all these projects are completed, approximately 14 miles of the City's higher-level thoroughfares (not including local streets) will have an alternative transportation component.

These existing and planned facilities provide an excellent foundation for expanding alternative transportation connections across the entire City. Combining a grant from the Indiana State Department of Health (ISDH) with its own resources, the City of Greensburg initiated the process leading to this Bicycle and Pedestrian Plan in late 2020, with the intent of clarifying the goals and objectives guiding the community in the development of additional facilities, identifying the location and type of these projects, and establishing policies, programs, and activities for cultivating a safe biking and walking environment. This document is the City's first plan for alternative transportation.

BENEFITS OF BICYCLE INFRASTRUCTURE

Bicycle infrastructure has many economic, physical, social, and environmental benefits for the communities which implement it, particularly protected bike lanes. Critical benefits as outlined by People for Bikes, a cycling advocacy group based in Boulder, Colorado, are listed on the following pages.¹

ECONOMIC BENEFITS

- On Salt Lake City's Broadway Street, replacing parking with protected bike lanes increased retail sales. A general street upgrade removed 30 percent of the vehicular parking from nine blocks of the major commercial street but **improved crosswalks, sidewalks and added protected bike lanes**. In the first six months of the following year, **retail sales were up 8.8 percent** over the first six months of the prior year, compared to a 7 percent increase citywide. After the changes, 59% of business owners on the street said they supported them; only 18% opposed.²
- The **value of properties within one block of the Indianapolis Cultural Trail increased 148 percent after construction**—more than doubling in value from 2008 to 2015. The \$63 million public and private investment helped create \$1 billion in additional assessed property value.³
- By shifting traffic from cars to bikes and making it easier to reach transit stops, Austin's planned protected bike lane network is projected to increase the city's traffic capacity by about 25,000 trips per day at about the same cost ratio as a single expressway widening.⁴
- Making biking comfortable, safe and dignified has made car ownership optional for low-income Denmark residents. Only 41 percent of trips by Denmark's poorest residents happen in cars, compared to 72 percent by the poorest Americans.⁵
- One mile of roadway planned through Golden Gate Park is 1,283 times more expensive to San Franciscans than one mile of [a] protected bike lane.⁶
- A redesign of NYC's Union Square to include a protected bike lane resulted in **49% fewer commercial vacancies**, compared to 5% more throughout Manhattan.⁷
- Customers who arrive at retail stores by bike spend the same amount per month as comparable people who [come] by car—they tend to make smaller purchases but return more frequently. Studies in Toronto; New Zealand; Wales; Davis, California; and Portland, Oregon, all found this to be the case.⁸
- Protected bike lanes can be part of street redesigns that significantly boost retail performance. **After constructing a protected bike lane on 9th Avenue, local businesses saw a 49 percent increase in retail sales**. On other streets in the borough, the average was only 3 percent.⁹

- After New York City installed a protected bike lane on Columbus Avenue, **bicycling increased 56 percent on weekdays, crashes decreased 34 percent, speeding reduced, sidewalk riding decreased, traffic flow remained similar, and commercial loading hours/space increased 475 percent**.¹⁰

GOOD FOR EVERYONE

- Because they shorten crossing distances, control turning conflicts, and reduce traffic weaving, **New York City's protected bike lanes decreased injury rates for people walking on their streets by 12 to 52 percent**.¹¹
- Where protected lanes were installed in New York and Washington D.C., **the number of bikes on sidewalks immediately fell by an average of 56 percent**.¹²
- When Chicago added a protected lane and bike-specific traffic signals to Dearborn Street, **stoplight compliance on bicycles immediately rose from 31 percent to 81 percent**.¹³
- Whether or not they ride bikes themselves, 79 to 97 percent of drivers say they feel moderately or very comfortable driving near bikes with a protected bike lane. Only half of the drivers are comfortable on roads without bike infrastructure.¹⁴
- Eighty-three percent of surveyed residents around the 15th Street protected bike lane in Washington, D.C. say the lane is a valuable neighborhood asset.¹⁵
- After Chicago's Kinzie Street protected bike lane was installed, a travel time study found **little to no effect on automobile traffic**.
- And forty-nine percent of survey respondents felt people's driving behavior improved on Kinzie Street after a protected bike lane was installed.¹⁶
- New York City's protected bike lane on 9th Avenue led to a **56 percent reduction in injuries to all street users**, including a 57 percent reduction in injuries to people on bikes and a 29 percent reduction in injuries to people walking, as well as an 84 percent reduction in sidewalk riding.¹⁷
- When protected bike lanes are installed in New York City, injury crashes for all road users (drivers, pedestrians, and cyclists) typically drop by 40 percent and by more than 50 percent in some locations.¹⁸
- After New York City installed a protected bike lane on Columbus Avenue, **bicycling increased 56 percent on weekdays, crashes decreased 34 percent, speeding reduced, sidewalk riding decreased, traffic flow remained similar, and commercial loading hours/space increased 475 percent**.¹⁹

IF YOU BUILD IT, PEOPLE WILL RIDE

- In 2007, the city of Seville, Spain, rapidly connected a network of protected bike lanes. They grew the bike network from 7.5 miles of protected bike lanes in 2006 to 94 miles in 2013. During the same period, bike trips grew 435 percent from 3 million in 2006 to more than 16 million in 2013. At the same time, the risk of being involved in a crash with a motor vehicle dropped 61 percent.²⁰
- Thirty-eight percent of people biking on Sherbourne Street in Toronto switched to biking for that trip after Sherbourne got a protected bike lane. Of those, 24 percent switched from driving. People taking longer trips and people over age 40 were more likely to make a car-to-bike switch.²¹
- On Washington DC's first protected bike lanes, **bike traffic has been growing seven times faster than the citywide rate.**²²
- In Seville, an 80-mile network of protected bike lanes boosted biking from 0.6 percent to 7 percent of trips in six years.²³
- In Hangzhou, China, where 84 percent of primary and secondary roads separate bikes from cars, 44 percent of middle school parents who own cars (and 62 percent of those who don't) ride a bike at least once a week.²⁴
- In the two U.S. cities that first started building modern protected bike lanes, New York and Washington D.C., bike commuting doubled from 2008 to 2013.²⁵
- The average protected bike lane sees bike counts increase 75 percent in its first year alone.²⁶
- Intersections in Montreal with protected bike lanes saw 61 percent more bike traffic than comparable intersections with no bike infrastructure.²⁷
- On D.C.'s Pennsylvania Avenue protected bike lane, bicycle volumes increased 200 percent after the facilities were installed.²⁸
- NYC's Prospect Park West protected bike lane saw a 190 percent increase in weekday ridership.²⁹
- After a protected bike lane was installed on Chicago's Kinzie Street: Bicycle ridership increased 55 percent, according to morning rush hour counts; Forty-one percent of respondents changed their usual route to take advantage of the new lane; Bicyclists accounted for a majority of all eastbound traffic (53 percent) and more than one third (34 percent) of total street traffic during a CDOT traffic count conducted during morning rush hour in August 2011.³⁰

- After buffered bike lanes were installed on Philadelphia's Spruce and Pine streets, bike traffic increased 95 percent, and the number of people biking on the sidewalks fell 22 percent.³¹
- From 2006-2011, bicycling in San Francisco increased 71 percent. From 2010-2011, it increased 7 percent, making up 3.5 percent of all trips in the city. The most significant growth in bicycling came on Market Street, which has protected bike lanes. On Market Street, bicycling increased 115 percent from 2006 and 43 percent from 2010.³²
- After New York City installed a protected bike lane on Columbus Avenue, bicycling increased 56 percent on weekdays, crashes decreased 34 percent, speeding decreased, sidewalk riding decreased, traffic flow remained similar, and commercial loading hours/space increased 475 percent.³³

SAFETY BENEFITS

- Ninety-six percent of people using protected bike lanes believe they increased safety on the street. And 80 percent of people who live near a protected bike lane project believe it increased safety on the road.³⁴
- Ninety percent of users say they feel safer bicycling on Pennsylvania Ave because of the new protected lanes.³⁵
- New York City's protected bike lane on 9th Avenue led to a 56 percent reduction in injuries to all street users, including a 57 percent reduction in injuries to people on bikes and a 29 percent reduction in injuries to people walking, as well as an 84 percent reduction in sidewalk riding.³⁶
- **Streets with protected bike lanes saw 90 percent fewer injuries per mile than those with no bike infrastructure.**³⁷
- **Streets with protected bike lanes saw 28 percent fewer injuries per mile than comparable streets with no bike infrastructure.** People were also 2.5 times more likely to bike on the protected lanes than in general travel lanes.³⁸
- When protected bike lanes are installed in New York City, injury crashes for all road users (drivers, pedestrians, and cyclists) typically drop by 40 percent and by more than 50 percent in some locations.³⁹
- After New York City installed a protected bike lane on Columbus Avenue, bicycling increased 56 percent on weekdays, crashes decreased 34 percent, speeding decreased, sidewalk riding decreased, traffic flow remained similar, and commercial loading hours/space increased 475 percent.⁴⁰

- Seventy-five percent of Portland and San Francisco residents who own bikes but ride infrequently are very” or “extremely” concerned about safety while riding. North research agency, 2013 - Selling Biking: A new report on the swing voters of the street.
- Protected bike lanes reduce bike-related intersection injuries by about 75 percent compared to comparable crossings without infrastructure.⁴¹
- Because they shorten crossing distances, control turning conflicts, and reduce traffic weaving, New York City’s protected bike lanes decreased injury rates for people walking on their streets by 12 to 52 percent.⁴²
- Where protected lanes were installed in New York and Washington D.C., the number of bikes on sidewalks immediately fell by an average of 56 percent.⁴³
- When Chicago added a protected lane and bike-specific traffic signals to Dearborn Street, stoplight compliance on bicycles immediately rose from 31 percent to 81 percent.⁴⁴
- By summer 2014, protected lane projects were on the ground in 53 U.S. cities and 24 states. By the end of the year, the country had more than 200 protected lane projects, or quadruple the number in 2010.⁴⁸
- Nearly 3 in 4 residents surveyed near Washington D.C.’s Pennsylvania Ave. protected bike lane[s] support the lanes and believe them to be a valuable asset to the neighborhood.⁴⁹
- A survey of protected bike lane users in Portland, Oregon, found that 70 percent of respondents thought the lane made cycling safer and more accessible. Motorists generally thought it didn’t make driving any less convenient or slower. Only three percent of cyclists didn’t use the protected lane, compared to before it was installed, when 12 percent of riders rode in the street instead of in the bike lane.⁵⁰

WHAT PEOPLE WANT

- **Protected bike lanes are seven times more effective than painted ones.** A 2015 survey of adults in the 50 largest U.S. metro areas found that adding a conventional painted bike lane to a four-lane commercial street increases the number of people who feel very comfortable biking there from 9 percent to 12 percent. Adding a protected bike lane boosts this to 29 percent. The reported comfort difference between a protected and conventional bike lane is about the same as the difference between a protected bike lane and an off-street path.⁴⁵
- **Forty-seven percent of people ages 18-35 in Indianapolis, Nashville, and Tampa strongly agree that they would like to live in a place where I don’t need to rely on a car.** Thirty percent somewhat agree. Nine percent strongly disagree.⁴⁶
- Seventy-five percent of people who live near a protected bike lane project say they support more in other locations. For those aged 18-34, it’s 85 percent; for those aged 18-24, 97 percent. Ten percent of people who live near a protected bike lane project give a perfect comfort rating to a conventional painted bike lane. And 22 percent give a perfect rating to a bike lane buffered by paint. 70 [percent] give a perfect comfort rating to a bike lane protected by planters. 62 percent of people who live near protected lane projects would be more likely to ride a bicycle if motor vehicles and bicycles were physically separated by a barrier.⁴⁷

¹ peopleforbikes.org/statistics/economic-benefits

² Salt Lake City Department of Transportation

³ Indiana University Public Policy Institute - Assessment of the Impact of the Indianapolis Cultural Trail

⁴ Wilkes, Nathan. City of Austin 2014 Bike Plan Update. Slide 47.

⁵ Transportvaneundersøgelsen, DTU Transport. 2011. National Household Travel Survey, 2009. "How protected bike lanes helped Denmark win its war on inequality."

⁶ San Francisco Bicycle Coalition. "No, protected bike lanes are probably not too expensive for your city to build."

⁷ NYC DOT, 2012. "Measuring the Street."

⁸ Clifton, K., et al., 2012. "Consumer Behavior and Travel Mode Choices."

⁹ NYC DOT, 2012. "Measuring the Street."

¹⁰ New York City Department of Transportation, 2011. "Columbus Avenue parking-protected bicycle path preliminary assessment."

¹¹ NYCDOT, 2013. "It turns out that protected bike lanes are fantastic for walking safety, too."

¹² NYCDOT and DDOT, 2010-2014. "Tired of Cyclists Riding on the Sidewalk? Build More Bike Lanes."

¹³ Chicago Department of Transportation, 2013. "City says Dearborn bike signals keeping cyclists in line."

¹⁴ R. Sanders, 2013.

¹⁵ District Department of Transportation, 2012. "District Department of Transportation Bicycle Facility Evaluation."

¹⁶ Chicago DOT, 2011. "Initial Findings: Kinzie Street Protected Bike Lane."

¹⁷ NYC DOT, 2012. "Measuring the Street."

¹⁸ Wolfson, H., 2011. "Memorandum on Bike Lanes." City of New York, Office of the Mayor, 21 March 2011.

¹⁹ New York City Department of Transportation, 2011. "Columbus Avenue parking-protected bicycle path preliminary assessment."

²⁰ R. Marqués and V. Hernández-Herrador. "On the effect of networks of cycle-tracks on the risk of cycling: The case of Seville."

²¹ Raymond Ziemba, Raktim Mitra, Paul M. Hess. "Mode Substitution Effect of Urban Cycle Tracks: Case Study of a Downtown Street in Toronto, Canada."

²² District Department of Transportation, 2009-2013. "How high can they go? DC bike counts show continuing surge in protected lane use."

²³ London Cycling Campaign, 2012. "Cycling increased tenfold in Seville after construction of miles of bike tracks."

²⁴ Lusk et al, 2014. "Gender and used/preferred differences of bicycle routes, parking, intersection signals, and bicycle type: Professional middle class preferences in Hangzhou, China." Journal of Transport & Health.

²⁵ U.S. Census. "NYC and DC, protected lane pioneers, just doubled biking rates in 4 years."

²⁶ Monsere, C., et al., 2014. "Lessons from the Green Lanes." National Institute for Transportation and Communities."

²⁷ The Journal of Transport and Land Use, 2013. "Spatial modeling of bicycling activity at signalized intersections."

²⁸ District Department of Transportation, 2012. "District Department of Transportation Bicycle Facility Evaluation"

²⁹ NYC DOT, 2012. "Prospect Park West: Traffic Calming & Bicycle Path."

³⁰ Chicago DOT, 2011. "Initial Findings: Kinzie Street Protected Bike Lane."

³¹ Bicycle Coalition of Greater Philadelphia, 2009. "Bicycle usage up 95% on Spruce and Pine bike lanes."

³² San Francisco Municipal Transportation Agency, 2012. 2011 Bicycle Count Report.

³³ New York City Department of Transportation, 2011. "Columbus Avenue parking-protected bicycle path preliminary assessment."

³⁴ Monsere, C., et al., 2014. "Lessons from the Green Lanes." National Institute for Transportation and Communities."

³⁵ District Department of Transportation, 2012. "District Department of Transportation Bicycle Facility Evaluation."

³⁶ NYC DOT, 2012. "Measuring the Street."

³⁷ Teschke, K., et al., 2012. "Route Infrastructure and the Risk of Injuries to Bicyclists: A Case-Crossover Study."

³⁸ Lusk, A., et al., 2010. "Risk of injury for bicycling on cycle tracks versus in the street." Injury Prevention.

³⁹ Wolfson, H., 2011. "Memorandum on Bike Lanes." City of New York, Office of the Mayor, 21 March 2011.

⁴⁰ New York City Department of Transportation, 2011. "Columbus Avenue parking-protected bicycle path preliminary assessment."

⁴¹ Harris et al, 2013. "Comparing the effects of infrastructure on bicycling injury at intersections and non-intersections using a case crossover design." Injury Prevention.

⁴² NYCDOT, 2013. "It turns out that protected bike lanes are fantastic for walking safety, too."

⁴³ NYCDOT and DDOT, 2010-2014. "Tired of Cyclists Riding on the Sidewalk? Build More Bike Lanes."

⁴⁴ Chicago Department of Transportation, 2013. "City says Dearborn bike signals keeping cyclists in line."

⁴⁵ Jennifer Dill, TREC at Portland State University. National Association of Realtors national survey.

⁴⁶ Rockefeller Foundation, 2014. "Rockefeller Millennials Survey."

⁴⁷ Monsere, C., et al., 2014. "Lessons from the Green Lanes." National Institute for Transportation and Communities."

⁴⁸ Green Lane Project, 2014. "Inventory of Protected Green Lanes."

⁴⁹ District Department of Transportation, 2012. "District Department of Transportation Bicycle Facility Evaluation."

⁵⁰ Monsere, C., et al., 2011. "Evaluation of Innovative Bicycle Facilities: SW Broadway Cycle Track & SW Stark/Oak Street Buffered Bike Lanes."



BICYCLING AUDIENCE

While this plan addresses both pedestrian and bicyclist infrastructure, bicycling deserves special attention due to varying skill levels among bicyclists and their subsequent degree of dependence on specialized infrastructure.

TYPES OF USERS

While highly specific and distinct between cyclist groups, some general trends can emerge when comparing types of bike riders across the field. At a high level, these traits have allowed the classification of cyclists into three distinct rider types, named Type A, Type B, and Type C. These categories organize riders based on their skill level, intent when riding (exercise, recreation, transportation), and amount of knowledge.⁵¹

TYPE A: “NEED FOR SPEED”

These riders are a highly dedicated group, generally characterized by a high level of fitness, fast speeds, and a preference for riding as a means of transportation whenever possible. Type A users are those who participate in triathlons for competitions in speed and/or distance and typically have high-end bikes.

Behavior: Typically the most aggressive group, they are not afraid of using existing roadways and sharing the road with motor vehicles. It is common for both individual riders and groups to use biking as their primary means of transportation.

Needs: Type A cyclists generally need minimal dedicated or specialized infrastructure for their biking needs. Many Type A cyclists will actively avoid areas with dedicated biking infrastructure as they seek to distance themselves from other users for less congested areas.

Role: Type As are generally well informed on biking rules and regulations within a community and can be great resources in educating and engaging other residents. Given their tendency towards competitive groups, they can also be involved in community events and competitions.

Risk: Type A riders have a spotty reputation with other riders given their competitive spirit and need to improve constantly. This pursuit of speed and endurance biking sometimes has them outpace and look down on less committed riders.



TYPE B: “JUST HAVE FUN WITH IT”

The more ‘mild’ riders, Type B cyclists find enjoyment in the act of riding. These riders are often called the “15 mph crowd” given their familiarity with biking rules and the higher speeds they like to travel compared to more general users.

Behavior: Type B cyclists are arguably the most diverse in terms of skill level. While they have all taken a strong interest in biking as a hobby, where they will take it varies wildly. Some are simply in transition and are working up their speed and endurance to match the Type A riders. Others are content to ride primarily for recreation and casual transportation and are not interested in becoming skilled enough to ride in mixed traffic.

Needs: Type B riders enjoy having dedicated facilities within their community to make their rides more convenient and directed but have the experience to utilize standard roadways to move around if needed.

Role: Type B riders are the potential riding leaders within a community, leading groups on tours and instructing their surrounding friends and family. These are the riders who are out enjoying a slow ride on a sunny day.

Risk: Given the diversity of its member base, Type B riders are the most difficult to quantify in terms of wants and needs. There also tends to be friction between A and B riders, as Type A's view B riders as not committed enough, and Type B riders view A's as overly competitive and overlooking the joy of the ride.

TYPE C: “YOU WANT TO BIKE THERE?”

A lack of familiarity with riding rules and fear for safety characterize Type C riders. The largest group of the three, Type Cs encompass those who are generally novice riders, family groups, and youth. For this group, riding is an occasional activity done during particular occasions or conditions.

Behavior: Competition for road space and a lack of knowledge are obstacles for most novice riders, and they may see them forgo roadways or biking entirely. That leads to youth using sidewalks for riding (illegal for adults, but generally permitted for youth) and families traveling by vehicle to dedicated parks/trails to ensure their safety while riding.

Needs: Type C riders need dedicated facilities to feel safe biking in their community, and a lack of facilities will severely limit participation. Additional amenities such as shade, water stations, and repair stations can also support a growing interest in biking.

Role: Type C users can become cyclists but need the dedicated resources and guidance to feel comfortable behind the wheel. Type C users represent the potential in a community to go mobile and get healthy.

Risk: As the number of perceived obstacles can be seen as overwhelming, residents may dismiss bike riding as a possibility and believe cyclists are a nuisance rather than fellow travelers on the road.

⁵¹ www.org/rider_classification.htm

TRANSPORTATION “MARKETS”

When dedicating specific routes within a community to trails, pedestrians, and bike lanes, consideration must be given to the level of demand residents will place upon a system and the destinations it connects. When making this evaluation, two primary principles are used in assessments:

- The geographic area served by the network, and
- The desirability of its destinations.

Implementing an alternative transportation system in a community opens up new opportunities for mobility, allowing residents to choose from a wider variety of travel modes. A traveler’s decision to make a trip is partially based on their perception of the relative cost and trouble of the journey. For example, a homeowner along a trail may view a park located a short walk away as more desirable a destination than a disconnected neighbor who, while located the same distance away from the park, does not have sufficient access to bikeways or walkways. Alternative transportation facilities change the relative perceptions of costs for trip-making, allowing for an increase in the number of trips and a possible diversion of trips from motor vehicles to walking or biking.

The network and service area of an alternative transportation system can also undergird a sub-market for local businesses. Indianapolis’s Cultural Trail and Monon Greenway show that having consistent pedestrian and bike traffic along a fixed route can be a huge economic driver. The slower travel speeds mean that merchants have a much better chance of capturing the attention of passing customers, and the space saved from parking lots can be used for outdoor features or other businesses.

A web-based community survey for the City of Greensburg, available from August to September of 2021, asked residents how they would use a bicycle and pedestrian system, if available. This survey garnered 112 responses with good representation across adult age groupings and concluded that most people would use it for recreational and physical activity purposes. However, a significant fraction—15%—indicated that they would rely on the system for connections to shopping areas. Finally, 5% of respondents indicated that they would use the system to access employment areas.

Parks and Recreation

The typical destination thought of when thinking of trail destinations; parks are a cornerstone of any community. As a community center and recreation space, parks are a bastion of natural green space in a predominantly urban environment. They provide a much-needed social valve for families to bring children to play and adult residents to exercise without restraint. Included in this category are other public destinations, including the Decatur County YMCA and the Greensburg Library.

Downtown/Shopping

As with most communities, the heart of Greensburg is its thriving downtown. In terms of the community’s identity and economy, this district has always been an engine for growth and change. The revival and ongoing renaissance of the Greensburg Downtown is proof that residents not only wish to take back the space for themselves but want to travel there for their shopping, dining, and community events. While limited in traditional parking due to its size, dedicated trail connections to the downtown offer a chance to expand on the number of residents that can access the downtown while getting around the space limitations on parking.

The expansion of shopping areas along SR 3 also merits attention. These areas include many grocery stores, pharmacies, retailers, and service industries that the community needs. However, they are generally accessible only by motor vehicle.

Employment

One logical principle for implementing alternative transportation connections in Greensburg is to connect major employment centers. These major centers, such as the Downtown or Honda plant, have a healthy worker base that constantly and consistently travels between their home and place of work. That commute increases the competition for road space and parking spaces and causes residents to dedicate more personal time to driving in order to arrive at work on time. Trail and bike lane connections can help things by allowing motorists to get off the road, relieving congestion, and providing a short daily exercise that promotes overall health.



PLANNING PROCESS AND COMMUNITY INPUT

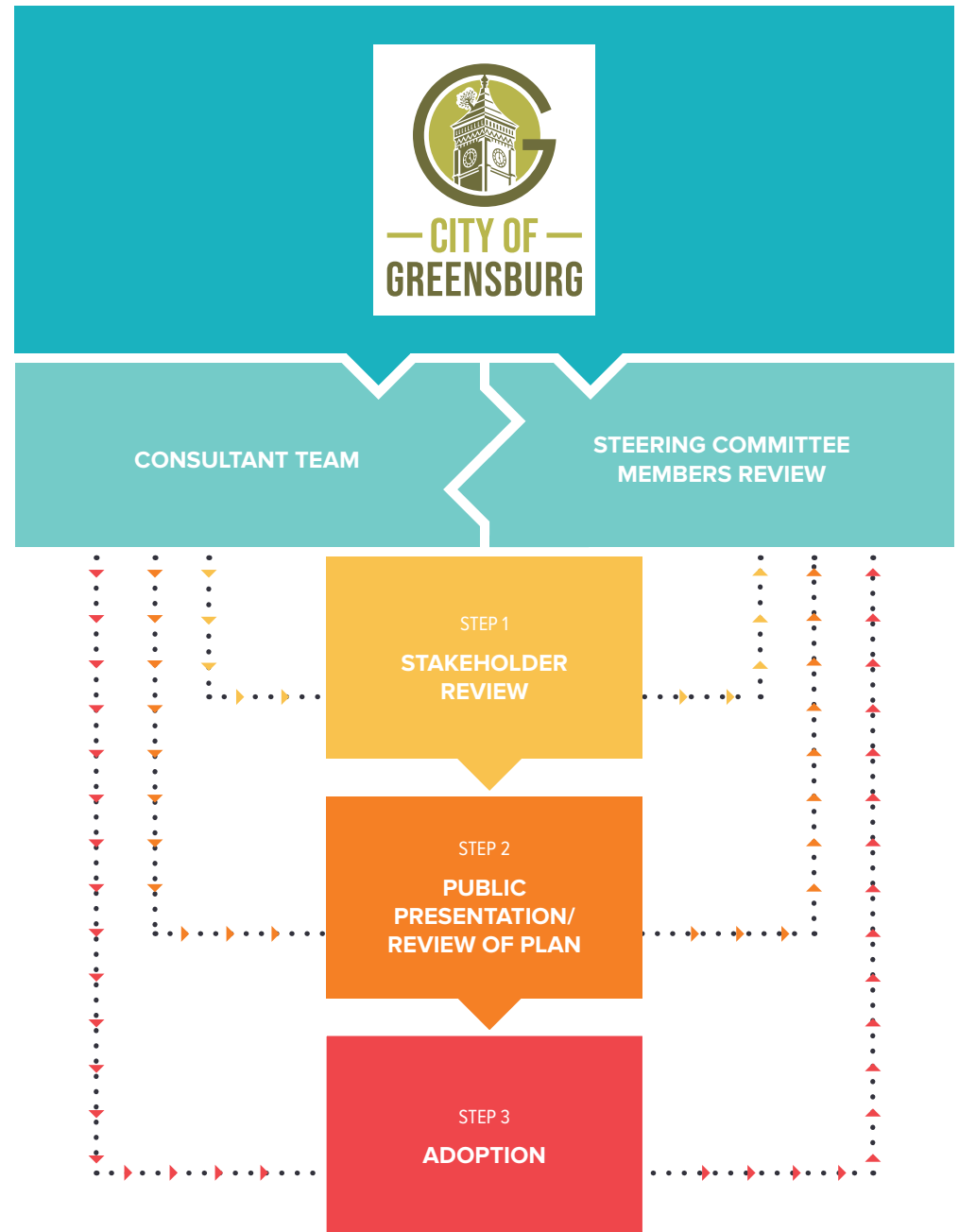
PUBLIC ENGAGEMENT

Effective bike and pedestrian master plans need reliable feedback from potential users and those who can implement recommended projects. To accomplish this goal, several Greensburg community interest groups were consulted during the planning process to ensure that this plan's recommendations were both feasible and consistent with the community's long-term interests.

STUDY REVIEW COMMITTEE

At the beginning of the process, City staff identified community leaders to serve on the Study Review Committee and guide this planning process. This committee was the primary contact with the consultant team and was the first to review any findings and recommendations.

After facilitating the initial direction and project discussion, committee members attended five(5) dedicated meetings through the planning process. These dedicated meetings were a time for members to discuss current progress on the plan, give feedback on efforts up to that point, and offer opinions on interpreting the collected data. Patterns and trends in data often emerge through the planning process, and regularly speaking with local leaders helps identify potential causes.

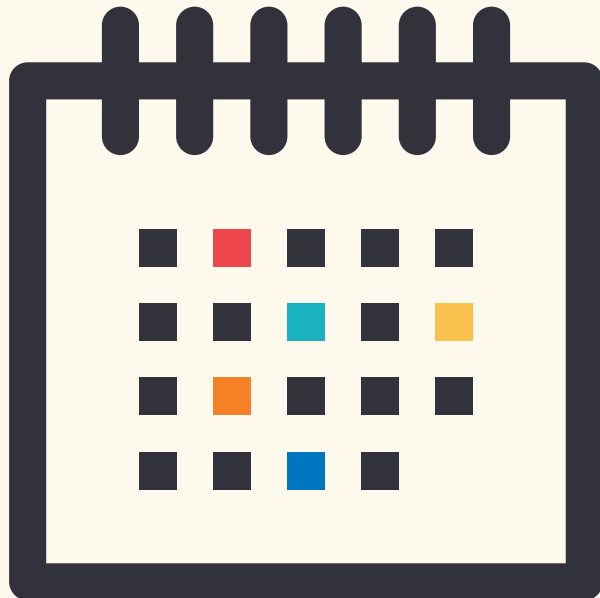


STAKEHOLDERS

Several community stakeholders were selected to make sure the interests of multiple groups were represented during the planning process and to have a more active involvement in creating the document. The selection ensured that the final plan reflected the community's desires and that any final recommendations were viable for implementation.

These stakeholders were selected based on their roles in the community and the organizations/groups they could represent in the process. After an initial list was formed, American Structurepoint personnel worked with Greensburg City staff on contacting and inviting these key individuals into the planning process. From here, one-on-one or small group meetings were scheduled via in-person and Zoom where stakeholders could give their thoughts on the community and their particular field. Generally, these Stakeholders offered a plethora of information from their groups' view and their view as longtime residents.

STEERING COMMITTEE MEETING DATES



- KICKOFF • FEBRUARY 11, 2021**
Introduction to the planning process and project. Why Steering Committee members were selected and what the Plan would accomplish.
- MEETING #1 • MARCH 9, 2021**
Outline research to be done, expectations of Steering Committee members in promoting the Plan, and defining the planning area
- MEETING #2 • JULY 21, 2021**
Committee members identified ongoing efforts by the community, opportunities for public engagement,
- MEETING #3 • SEPTEMBER 10, 2021**
With existing conditions findings completed, Committee members began discussing potential routes, the scope of the infrastructure, possible trail amenities, and specific areas of concern within the community.
- MEETING #4 • OCTOBER 7, 2021 (ANTICIPATED)**
Review of the final draft document.

PUBLIC SURVEYS

Surveys were distributed via Greensburg social media sites and physical business card handouts with QR code links to hear opinions on the community's future. These surveys were based around specific elements of the community, such as lifestyles and collecting feedback on final plan recommendations. One hundred twelve residents responded to these surveys and helped identify the level of interest of different community members towards walking and biking.

PUBLIC WORKSHOPS

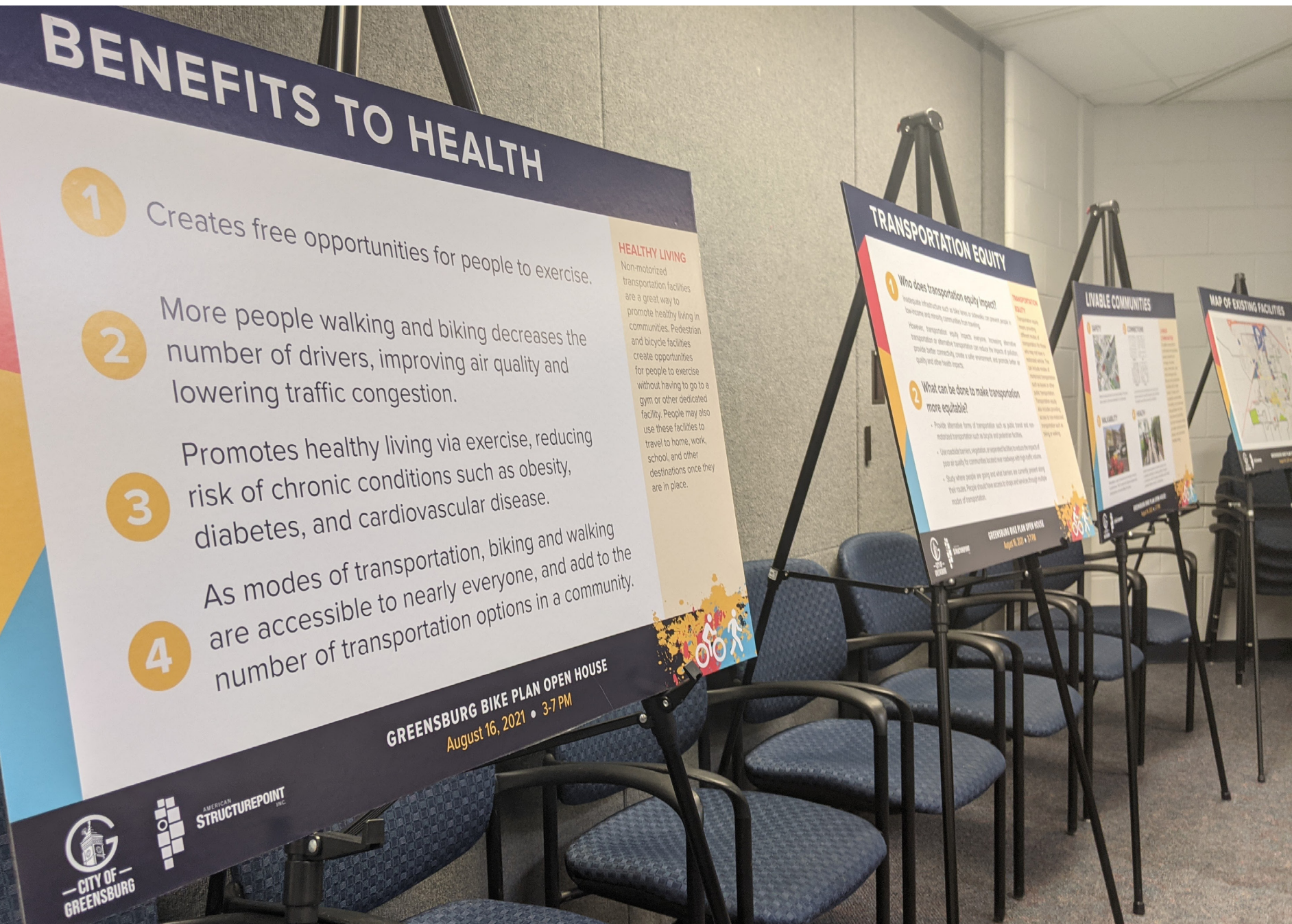
To give the planning process a physical presence in the community, City staff and American Structurepoint personnel set up public workshops at several local events to spread awareness of the plan and answer any questions residents may have had in person.

PUBLIC EVENTS AND WORKSHOPS



- AUGUST 27, 2021**
Main Street Greensburg Farmers' Market
- AUGUST 29, 2021**
St. Mary's Greensburg Festival
- SEPTEMBER 17-18, 2021**
Tree City Fall Festival
- SEPTEMBER 25, 2021**
City Hall Grand Reopening Event

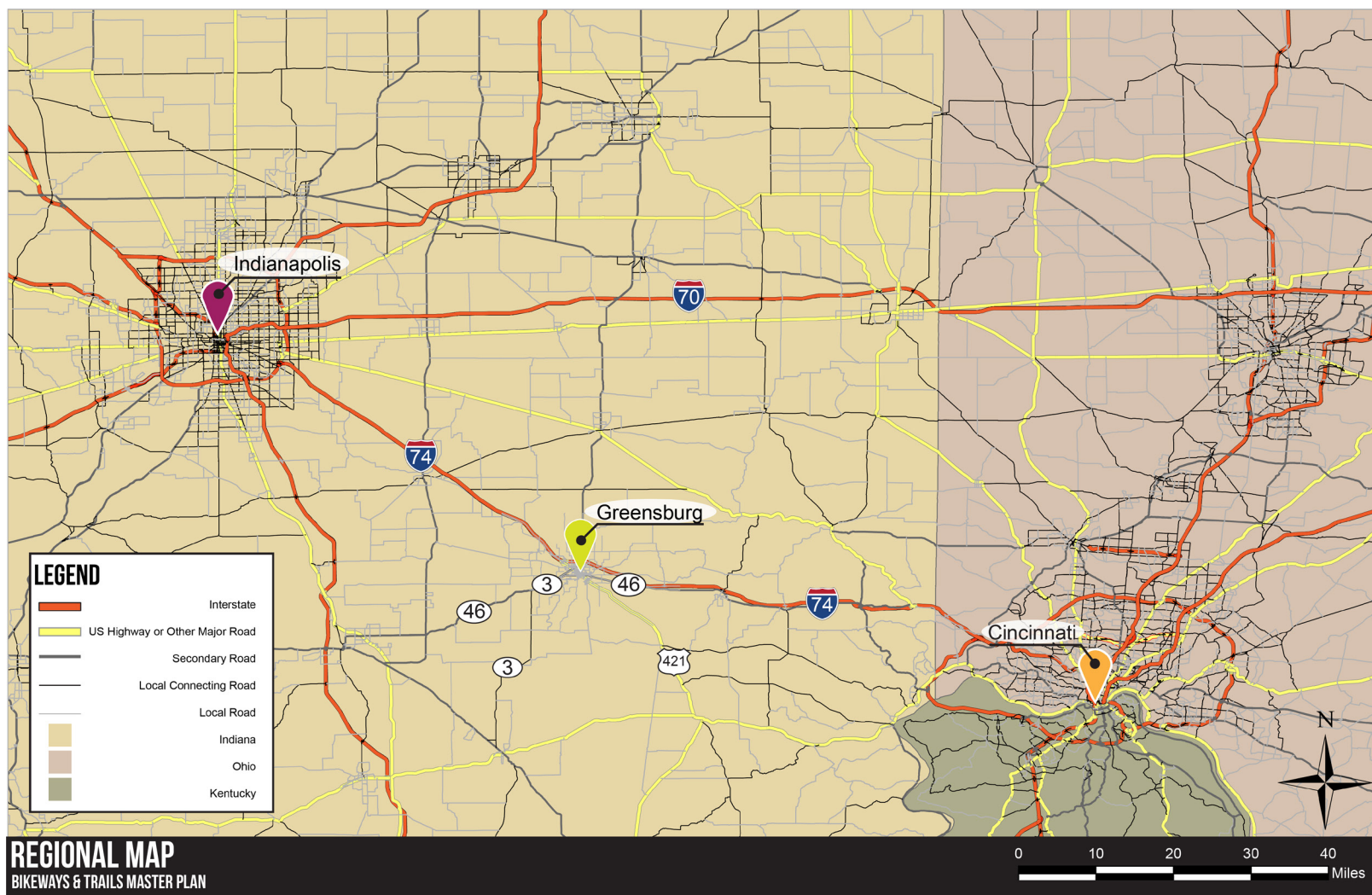




EXISTING CONDITIONS

CITY CONTEXT

Greensburg is a small, rural community uniquely positioned between Indianapolis and Cincinnati. Greensburg is primarily a roadway city, which is typical for smaller gatherings. Greensburg is also the county seat for Decatur County, making the city a primary destination for county residents.



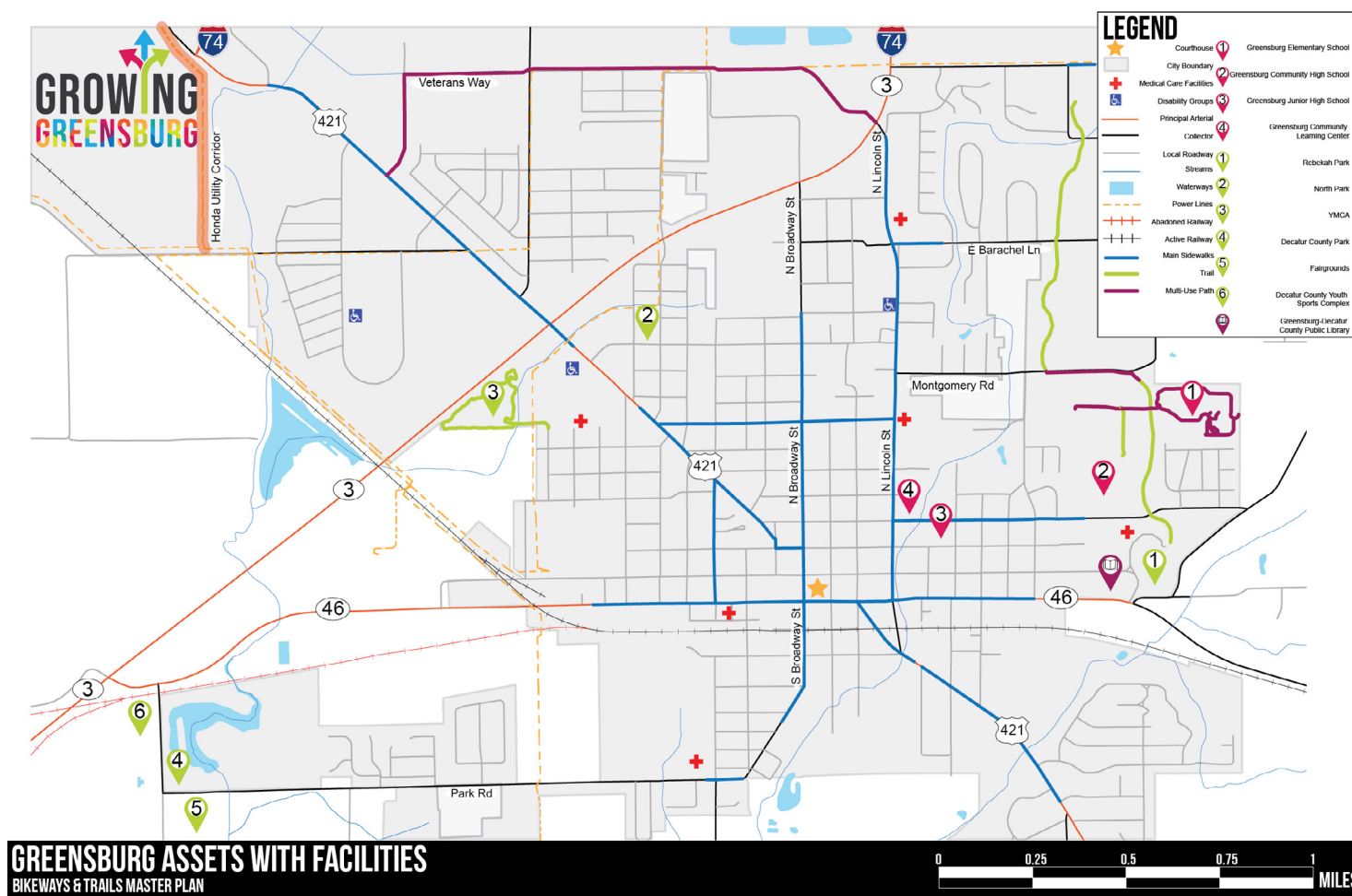
A map showing the location of Greensburg within the broader region, which also includes Indianapolis and Cincinnati. SOURCE: ESRI, OpenStreetMap

CURRENT BICYCLE AND PEDESTRIAN FACILITIES/AMENITIES

Although Greensburg is a roadway community, the city has several bicycle and pedestrian activities and facilities. These facilities include Rebekah Park, North Park, Decatur County Park, Veterans Way, the Charles L. Buell Trail, Pirate Park, Tree City Park, and Decatur County Family YMCA. Bird scooters are also a recent microtransit asset added to the city. These scooters provide transit options to those who may not have access to a car or proper bicycle or pedestrian facilities. Scooters can also encourage more multi-modal forms of travel such as biking or walking and will also be discussed in more detail later in this document.

ASSETS

Outside of parks and recreation, several other assets are important aspects to residents. These assets include railroads, both **abandoned** and active, above-ground power utility corridors, stream corridors, and **ADA facilities**, as seen in the map below:



Map of assets, such as existing parks, trails, paths, medical facilities, and local disability group locations in Greensburg.

SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.



RAILROADS

Railroads can provide both opportunities and challenges to bicycle and pedestrian facilities. Crossings can be dangerous to bicyclists and pedestrians, especially when also interacting with intersecting vehicles. However, the railway corridor can provide a space for a bicycle and pedestrian facility to travel alongside the tracks. Greensburg is intersected by two railways, the Central Railroad of Indiana and Conrail Railroad, that combine towards Main Street. The Conrail Railroad, which approaches the city from the southwest, was previously an abandoned railroad. However, the project team was informed that this section of the railway will become active again and serve a nearby agroindustrial site.

ABOVE-GROUND POWER UTILITY CORRIDORS

Above-ground power utility corridors can provide a similar use. Utility easements often have space for parallel bicycle or pedestrian infrastructure. That can be an asset when there is no available right-of-way on the roadway.

One specific utility core in Greensburg that could be utilized for future bicycle and pedestrian infrastructure is Honda's utility core. Honda is a significant employer in Greensburg, although it is removed from the core of the city. Honda is seen as a critical destination by many potential users and stakeholders within Greensburg. As Honda is currently physically separated from Greensburg, a route that utilizes Honda's utility core would be an ideal opportunity to provide a much-needed connection. However, it is unknown what easements are in place along this utility corridor and if it is publicly owned. If a potential route to Honda is desired in the future, that utility corridor may provide a feasible option to connect Honda to the system once segments of path and trail are put in place throughout Greensburg.

STREAM CORRIDORS

There is often room along stream corridors to add facilities. Several streams, such as the Muddy Fork Sand Creek and Sand Creek, travel throughout Greensburg.

ADA FACILITIES

ADA facilities are assets that officially serve persons with disabilities, who make up 26% of the population of the United States,⁵⁵ although the facilities benefit the rest of the population, as well. ADA facilities include sidewalk ramps, wide and smooth pathways, accessible entryways, van-accessible parking, and many others. While these facilities are now required by law, that does not mean that they are necessarily in use or accessible. It is essential to ensure that future facilities are accessible to the disabled population and that existing infrastructure is safe and accessible. Planning for accessibility will be discussed more later in the Universal Design section of this document.

⁵⁵ [cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html](https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html).

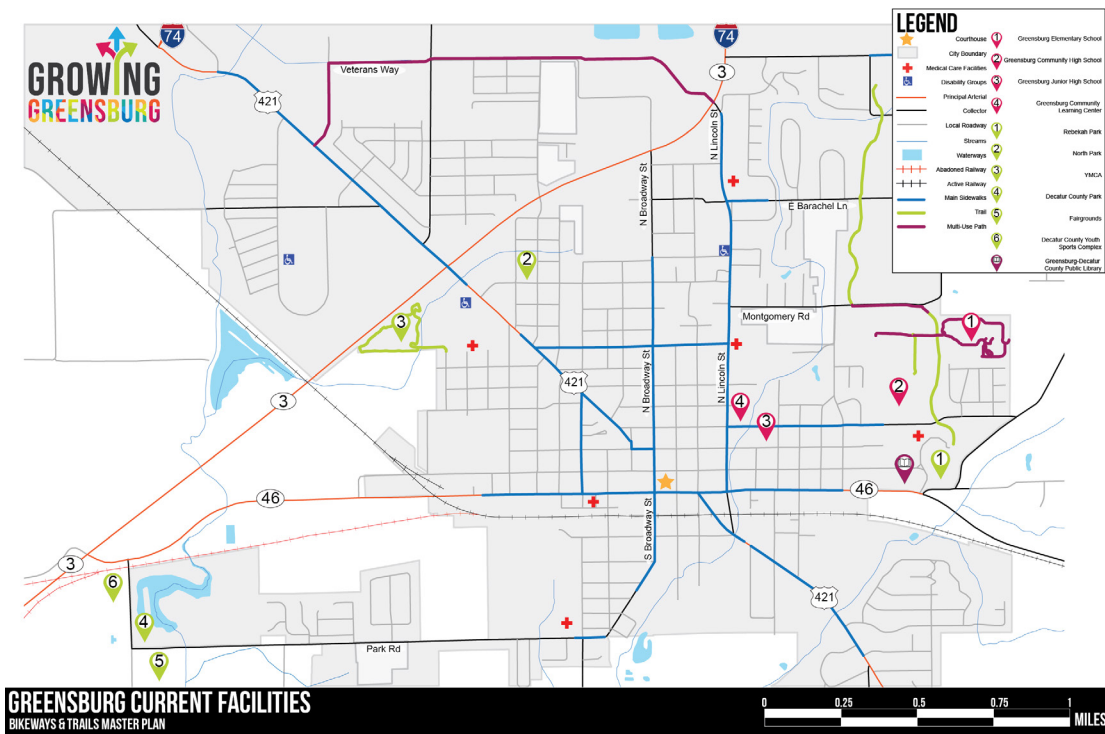
BICYCLE AND PEDESTRIAN FACILITIES

Greensburg's bicycle and pedestrian facilities can be best described as trails, multi-use paths, and sidewalks. Existing trails within Greensburg connect Rebekah Park, the elementary school, community high school, the Decatur County Community Schools Building, a nearby industrial park, the Charles L. Buell Trail, the YMCA, and an assisted living community. The City currently has one multi-use path along Veterans Way. Greensburg also has a vast network of sidewalks that serve the community. However, for the report, only sidewalks downtown and along major roadways were included. Many of the major routes in Greensburg, such as US 421, Lincoln Street, and Main Street, have sidewalks. However, these major roadways have many curb cuts, which can be dangerous for pedestrians utilizing the sidewalks. There are also segments along several of these major roadways which lack sidewalks. That creates a gap in the sidewalk infrastructure.

While most of Greensburg does have sidewalks in place, sidewalks are most consistently used in the city's downtown area. Sidewalks are also parallel to major roadways, such as 421, SR 46, and N Lincoln Street. Safe traffic crossings have yet to be installed along many major intersections with SR 3.

The Rebekah Park Trail is located at the northeast section of Greensburg and connects Rebekah Park, Greensburg Community High School, several industrial parks, and the Decatur County Community Schools Building. That provides pedestrian and bicycle access on the northeastern side of the city. The Charles L. Buell Trail is located along **County Road 80**, heading northeast outside of the city. Decatur County manages this trail.

On the northwest side of the city, Veterans Way is a multi-use path. The Decatur County Family YMCA is also located in the northwest portion of the city along SR 3. The Decatur County Family YMCA also has a trail that connects to Morning Breeze Retirement Community. North Park is another recreational asset in the northwest portion of Greensburg.



Map of current facilities, such as trails, sidewalks, and multi-use paths, existing in Greensburg.
SOURCE: Decatur County GIS, IndianaMAP.

APPLICABLE POLICIES

SIDEWALK ORDINANCE

Several applicable policies currently in place in Greensburg affect the placement of future pedestrian and bicycle facilities. These policies include the city's sidewalk ordinance, subdivision ordinance, zoning standards, and thoroughfare plan.

SIDEWALK CAFES

Greensburg's current sidewalk ordinance allows for café use of sidewalks, which means that businesses can offer outdoor dining on the sidewalk next to their business, thereby increasing the activity along the sidewalk. The public sidewalk area immediately next to an abutting business property of the applicant has to be 6ft from the edge of the curb. Beverages and food are only allowed to be consumed in the sidewalk sales area.

The City's sidewalk ordinance also prohibits riding on sidewalks and any other uses besides pedestrian use. That is a vital factor to consider when deciding on future facilities as major roadways may have sidewalks in place, but this does not mean a road is safe for cyclists.

OBSTRUCTIONS

Obstructions such as signs, sidewalk decorations, and other objects placed along sidewalks should not obstruct more than one-half the width of the sidewalk. Keeping sidewalks clear of obstructions is essential to ensure walkways are accessible to all users.

CONSTRUCTION AND REPAIRS

The Board of Public Works is responsible for the construction or repair of sidewalks. It should adopt a resolution to decide the type of sidewalk to be constructed or the nature of the repairs. Property owners must be informed if construction/repairs will happen on a sidewalk adjacent to their property. However, the property owner adjacent to the sidewalk is responsible for its maintenance. If the property owner fails to build or repair an adjoining sidewalk, they are liable to the city for any accidents or injuries that may occur from neglect.





ZONING ORDINANCE REQUIREMENTS

SUBDIVISION ORDINANCE

The City's subdivision ordinance requires all subdivisions to have sidewalks with a minimum width of four feet. The sidewalk must also have a grass buffer area between three to five feet from the curb to the edge of the sidewalk. Poles shall be placed in easements along rear or side lot lines for electric lights, telephone lines, or other utilities. Federal law also requires ADA-accessible sidewalk ramps.

STANDARDS

The City's zoning code is another resource that provides policies about easements and right-of-way, which are essential aspects of planning for future pedestrian and bicycle facilities. An easement is the right of use over the property of another owner. Easements are used for utilities, roadways, or in other instances where property may be shared. Easements can be a valuable tool in acquiring right-of-way for bicycle and pedestrian facilities. Similarly, "right-of-way" is the right to pass over or through property owned by someone else. In this document, the physical width of the roadway or segment is referred to as the "right-of-way."

RAILROADS

Because certain classifications of roadways must be wider than others, excess right-of-way is an important factor to consider when planning future infrastructure. Depending on the right-of-way of the easement, some utility or railroad easements may have extra right-of-way where a bicycle or pedestrian facility could be placed.

RIGHT-OF-WAY

The table provides an overview of the right-of-way required for different roadways in Greensburg. The roadway width is defined from one curb of the roadway to the other curb. Local, collector and arterial are the main roadways in use at the city level. A local road provides direct access to residential areas. These roadways are usually quieter and safer. Collectors connect local roadways to arterial roadways. Arterial roadways connect and supplement the interstate and highway system.

Local	50 ft
Collector	70 ft
Arterial	110 ft

PARKING

Lastly, the zoning code can also designate the number of parking spaces that a business or other development must provide. Greensburg's zoning code currently does not require a minimum number of bicycle parking facilities or vehicular parking for trails or parks. As the bicycle and pedestrian facilities throughout Greensburg increase, it may be beneficial to supplement the current zoning code to ensure adequate bicycle parking around bicycle facilities and other popular destinations.

SCOOTER ORDINANCE

Micromobility options like bike and scooter shares are an environmentally friendly way of allowing people to make short and enjoyable trips at a low-cost to both the user and the city. These more maneuverable and convenient methods of travel are a terrific asset to the city, and ridership should be encouraged. Scooters and bikes provide options for those who are young, healthy, and physically able, but they are out of reach for the nearly three million people who use wheelchairs for mobility in the US and a significant percentage of the 40.7 million Americans who report that some kind of disability impacts their daily lives.⁵⁶ For people with disabilities, uncontrolled dockless micromobility can be a hazard, as seen in the image to the right.

While the public feedback for this plan received only minor negative comments about the current scooter share, a few respondents did note that scooters are being left in unsuitable spots. The City could adopt a Micromobility Ordinance to limit potential future conflicts. Some examples of rules that could be contained in a micromobility ordinance are:⁵⁷

- Clarify that all businesses have obligations and can't operate in the jurisdiction without meeting those obligations.
- Set forth requirements to address expected or common problems, such as customers blocking the sidewalks.
- Decide how to pass the cost of ADA enforcement on to the businesses who will profit from using the public access.
- Ensure information collection and reporting are sufficient to monitor the legal requirements for the safe operation of devices, including not hindering mobility for people with disabilities.

Dockless scooters posing literal barriers when they block sidewalks and passageways is a denial of fundamental civil rights under the Americans with Disabilities Act (ADA), whether the pedestrian encountering them has cognitive disabilities, is blind, or otherwise has limited mobility. One method of encouraging riders to leave their scooters in a place that will not cause harm to the disabled, and pedestrians in general, is to have a decal or "corral" on the sidewalk showing where the scooters should be docked, as shown in the image to the right.

Cities that have adopted micromobility ordinances include Portland, Oregon; Seattle, Washington; Austin, Texas; and Chicago, Illinois. Their ordinances could be adapted to fit the unique needs of Greensburg. Austin's ordinance, for example, specifies that micromobility units cannot be parked within or immediately adjacent to ADA accommodations such as curb ramps, braille signs, railings, and signal push buttons. Units cannot be left by bus stops, shelters, passenger waiting areas, or bus layover and staging zones. Disabled parking zones also are off-limits for scooter and bike parking. The City has designated "No Deploy Zones" areas where micromobility companies are prohibited from placing their devices, such as surrounding the Texas School for the Blind, Austin Medical Plaza, and other select locations. Micromobility companies must also have visible language that notifies device users of the city's "Dockless Mobility Code of Ethics."⁵⁸

Karen Tamley, the former commissioner of the Chicago Mayor's Office for People with Disabilities, has stated: "The best engagement practice that planners can use is being proactive in inviting people with a wide range of disabilities to be at the table throughout a process. Don't wait [until] after the complaints come in," She recommends that planners and others get "in front of new mobility options before they get too entrenched to enforce proper controls on them."⁵⁹



⁵⁶ planning.org/planning/2020/mar/access-denied.

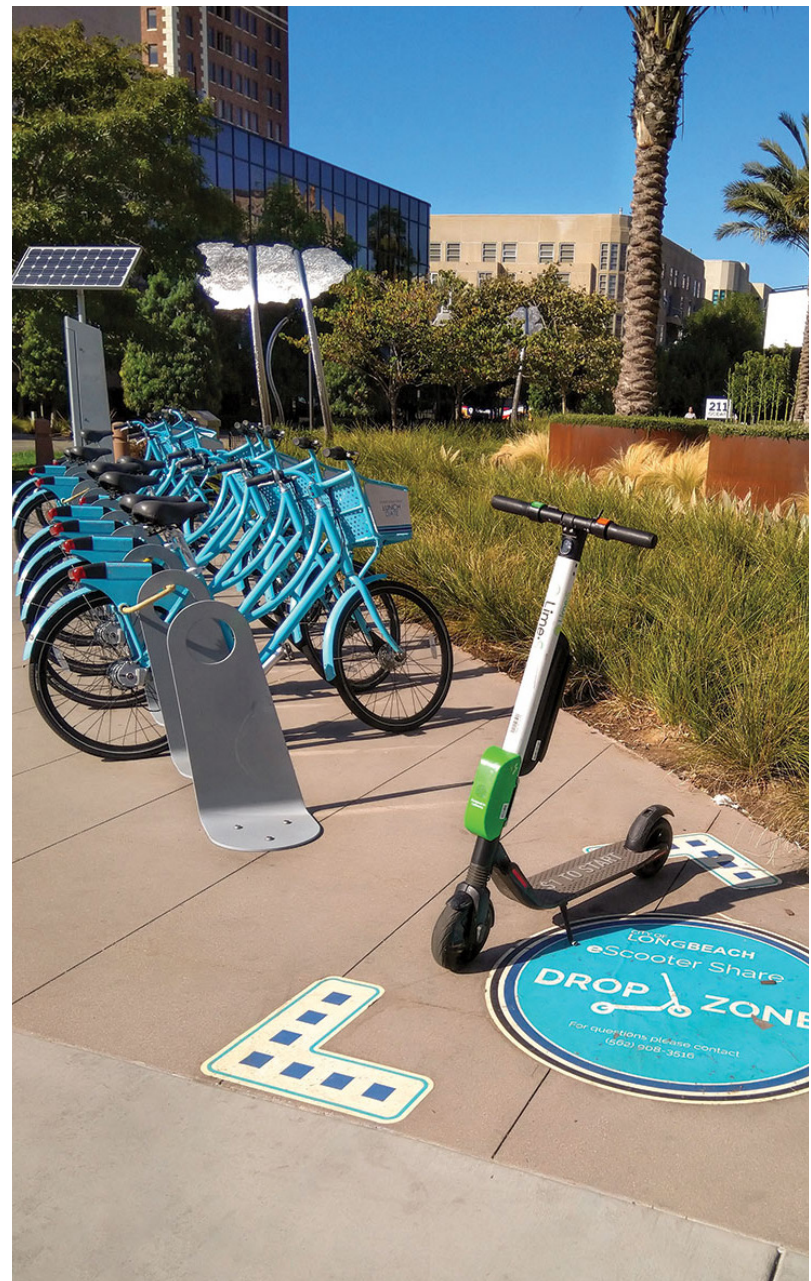
⁵⁷ planning.org/planning/2020/mar/access-denied.

⁵⁸ planning.org/planning/2020/mar/access-denied.

⁵⁹ planning.org/planning/2020/mar/access-denied.



A wheelchair user maneuvers around a dockless bike partially blocking a curb ramp.
Source: Steve Ringman/The Seattle Times.



A scooter drop corral help keeps the sidewalks clear.
Source: WGI.

POTENTIAL USERS

As noted in the public input section, an electronic survey was conducted as part of the planning process; this survey asked respondents whether they currently bike or walk, why they do it, and what it would take for usage to increase. The responses indicate an excellent cross-section of adult ages.

One striking result is the number of users (98%) who are uncomfortable riding a bike in mixed traffic. The resulting picture of reduced biker confidence and/or skill is reinforced by the large number of responses (75%) who said that dedicated lanes and other associated facilities (such as bike parking) would get them to ride more frequently.

Most survey respondents indicated that they would use the alternative transportation system for recreational and/or fitness purposes; however, a significant cohort (15%) appears to rely on biking or walking for access to shopping areas. A smaller group (5%) would use the system for accessing jobs.

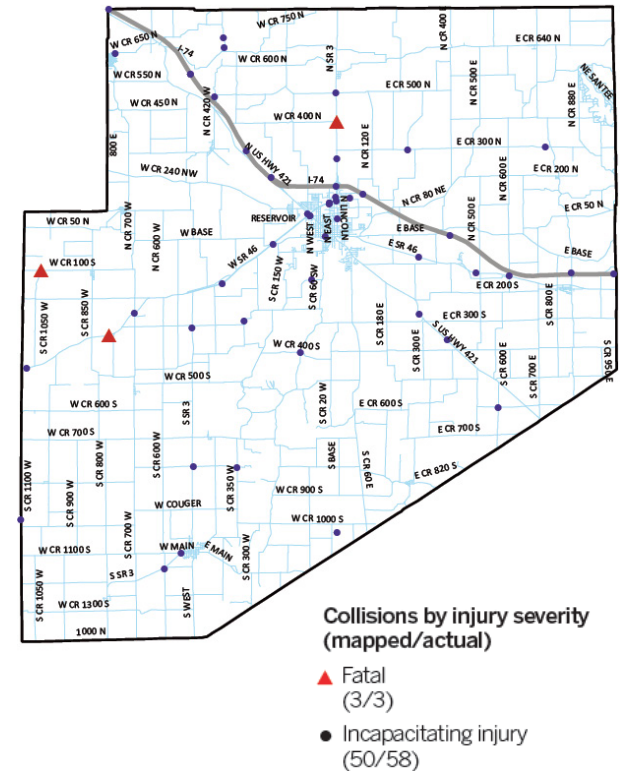
SAFETY

A priority of any community is the safety of its residents. Cities such as Greensburg want their residents to move around quickly but also with peace of mind. Part of any bike and pedestrian plan must touch on how community residents will interact with and be protected from automotive vehicles moving quickly throughout the environment.

Unfortunately, Greensburg has an unusually high number of vehicle collisions every year. According to data collected by the Indiana University Public Policy Institute, in 2019, this number reached a total of 413 vehicle collisions, roughly four times that of surrounding communities like Rushville (106 crashes) and Batesville (71 crashes).⁶⁰ The City of Shelbyville held similar statistics in 2019 (452 collisions) but boasts a population near twice that of Greensburg. While thankfully only around 1-percent of these were alcohol-impaired, the sheer volume of yearly traffic accidents demonstrates a public health risk to residents.

The map in figure X shows all the fatal and incapacitating accidents in Decatur County in 2019, while figure X shows the locations of all auto accidents in total. As can be seen, most of these accidents occurred at intersections along US 421, North Lincoln Street, and in particular, SR.⁶¹ The organic and compact nature of the SR3 and N Lincoln Street intersection is of particular concern, given its character of high speeds and higher traffic. That demonstrates a clear need for additional traffic calming measures along major community roads if trails and bikeways share the roadway.

Of particular note are the low number of cyclists (1) and pedestrians (4) who reported to be involved in traffic collisions, even though the City of Greensburg is bisected by the major state roads 421, 46, and 3. That demonstrates a supreme level of care and caution given by Greensburg drivers to their fellow non-motorized travelers.



⁶⁰ Indiana University Public Policy Institute- Indiana Traffic Safety, County-Level Crash Data. Indiana Traffic Safety Facts, Decatur County. <https://trafficsafety.iupui.edu/county/index.html>

⁶¹ City-Data.com, Greensburg fatal accident statistics for 1997 - 2019. city-data.com/accidents/acc-Greensburg-Indiana.html

COLLISIONS BY MUNICIPALITY, 2019

Municipality	Collisions				% of Total		
	Total	Speed-Related	Alcohol-Impaired	Motorcycle	Speed-Related	Alcohol-Impaired	Motorcycle
Greensburg	413	31	4	10	7.5%	1.0%	2.4%
Millhousen	1	0	0	0	0.0%	0.0%	0.0%
St. Paul	4	0	0	1	0.0%	0.0%	0.0%
Westport	10	0	0	0	0.0%	0.0%	0.0%
Rural	470	88	5	2	18.7%	1.1%	0.4%
Unknown	4	0	0	0	0.0%	0.0%	0.0%
Total	902	119	9	13	13.2%	2.1%	1.4%

DRIVER STATISTICS, 2019

Age Group	Licensed Drivers	Drivers in Crashes	Per 10K Licensed
15-20	1,534	189	1,232.1
21-24	1,226	119	970.6
25-44	6,002	481	801.4
45-64	6,590	364	552.4
65+	4,077	166	407.2
Total	19,429	1,319	678.9

COUNTY COLLISIONS OVERVIEW, 2015-2019

	2015	2016	2017	2018	2019
Total Collisions	918	1,011	874	909	902
Fatalities	0	16	2	5	3
Motorcycle collisions	12	18	13	14	13
Speed-related collisions	77	120	116	119	105
Alcohol-impaired collisions	20	17	24	23	9
Overall restraint use	80.5%	82.8%	75.5%	77.4%	79.3%

INDIVIDUALS IN COLLISIONS, 2019

Person Type	Total	Fatal Injuries	Non-Fatal Injuries
Driver	1,322	2	120
Occupant	25	1	24
Pedalcyclist	1	0	1
Pedestrian	4	0	4
Animal-Drawn Vehicle Operator	0	0	0
Total	1,352	3	149

20-YEAR VISION

SYSTEM VISION AND GUIDING PRINCIPLES (GOALS)

Guiding goals and principles for the City's alternative transportation system are based on public outreach; methods for garnering input and consultation with the study review committee on their meaning are described later.

Some general considerations that arose from these discussions include the following:

- Safety should be the highest priority.
- Connections must be made across the city so that biking and walking will be considered legitimate transportation choices.
- Educating residents that biking and walking positively impact their health.
- Mobility for all types and skill levels of bikers and pedestrians will be enhanced in terms of accessibility, efficiency, and overall experience.
- Traffic rules and regulations will be enforced.

With these principles in mind, the following goals and objectives for the system were established:

GOAL #1

The City of Greensburg and its partners will expand the community's alternative transportation infrastructure, as appropriate, to provide safe, fun, and convenient travel options. With its existing facilities and current projects, the City has already taken significant steps to provide alternative transportation options to its residents and businesses. By connecting these facilities into a more extensive system, the value of the existing investments will be increased and expand their benefits to more people. Objectives include the following:

Objective A: Focus on desired connections.

As noted above, recreational uses and park access were the most frequently cited desires in the user survey. Many respondents explicitly mentioned City Park (also known as Decatur County Park) as the desired destination. Shopping areas were the second-most highly mentioned destination, with employment areas coming in third.

Objective B: Accommodate all levels of skill and physical ability as permitted.

Only two (2) survey respondents—less than 2% of all responses—indicated that they were comfortable biking in mixed traffic (that is, without dedicated facilities). Increasing the proportion of trips made by alternative transportation will necessarily involve developing specialized infrastructure instead of merely designating streets for supplemental uses without these facilities. As the community's general skill level rises, more and more bikers may become sufficiently independent to move around the community without dedicated options. Dedicated facilities also allow for safer use by citizens who may have physical limitations.

Objective C: Prioritize investments that enhance options and safety for users with a higher dependency on alternative transportation.

Certain areas within the City have a higher proportion of low-income residents, who presumably have less access to automobile transportation. These households typically rely more on alternative transportation for accessing specific destinations; as noted earlier, the public survey identified shopping as a strong generator of trips, followed by employment. Anecdotally, it has been observed that many pedestrians cross SR 3 to get to shopping areas, creating safety concerns about interacting with a busy state highway.

Objective D: Supplement or amend the City's development ordinances to accommodate alternative transportation.

At the time of this writing, the City is conducting an update to its Comprehensive Plan, which will be followed up by updating the City's development ordinances. These ordinances place requirements on new development for implementing and installing pertinent infrastructure and facilities. **Currently, these ordinances do not explicitly consider alternative transportation among the types of elements that are required;** as part of the update, sufficient consideration should be given to accommodating these facilities.

GOAL #2

Existing and potential bicyclists, walkers, and motorists should understand safe methods of cooperating and interacting on the City's complete transportation system.

The City's transportation system should accommodate all users, as all residents require a minimum degree of mobility to conduct their everyday affairs. In theory, a surface (roadway) transportation network can accommodate all these users. Still, in practice, bicyclists and pedestrians, who operate at lower speeds than motor vehicles and do not have access to vehicular safety features (seatbelts, airbags, etc.), are at a severe disadvantage. Driver and bicyclist education, in addition to the development of dedicated facilities, helps to offset this safety issue by ensuring the users are aware of one another and can reliably predict their behavior.

Objective A: Cultivate relationships with existing organizations to promote walking and bicycling education.

In response to a question regarding Indiana laws governing bicyclists, one respondent answered, "I didn't know there were any." Well, there are. Indiana Code Title 9, Article 21 outlines general requirements for equipment and behavior. Overall, these requirements indicate that bicyclists have the same rights and duties as motorists. Fewer restrictions apply to walking—pedestrians are not allowed on interstate highways, for example—but best practices for safety purposes still apply, as they do for bicycling.

Numerous organizations, such as the YMCA, County Parks Department, and local Scouts organizations, have organizational missions that overlap with safe biking and walking, and educational materials abound. The City should cultivate relationships with these institutions to educate existing and potential system users on safe biking and walking.

Objective B: Use signage and promotional materials to communicate proper behavior to motorists.

In Indiana, motorist education for alternative transportation is limited to what is found in driver's licensing materials. Motorists, therefore, need to be notified that they are on a bicycle or pedestrian route through appropriate signage materials. "Share the road" signs can also be an effective way to remind motorists of their responsibilities to interact safely with users of alternate transportation. These messages should be reinforced in any promotional materials for the alternative transportation system.

Objective C: Use a combination of controlled speed limits and the judicious use of targeted enforcement to ensure proper integration of multiple transportation modes on City streets.

While not widely noted as a problem to respondents of the public survey, excessive speed on the part of motorists has been pointed out as a significant contributor to excessive pedestrian injuries and/or fatalities nationwide.⁵² Reducing speed limits can then significantly reduce these negative impacts. Greensburg has a communitywide speed limit of 30 mph, which is in line with best practices for alternative transportation that generally limit motorist speeds to 35 mph or less.⁵³ Nevertheless, several roadways, such as SR 3 and US 421, are outside the City's direct jurisdiction and can have 45 mph or higher speed limits. The City should continue to monitor accident reports using the Statewide ARIES crash database, noting problem areas and working with the police departments, Indiana State Police, and INDOT. That will improve enforcement at trouble spots and identify facilities and/or speed zones for increased safety.



<https://www.sonashomehealth.com/>

GOAL #3

The existing and planned alternative transportation system will easily be comprehensible to system users and interacting motorists.

Increasing alternative transportation usage will require building confidence in potential users that the system helps them reach their desired destinations. To do so, users will have to understand the system's components relative to the community's geography, whether they plan out travel in advance or need information en-route.

Objective A: Develop and promote a unified brand for the alternative transportation system.

Conduits for finding information on alternative transportation routes, as with many other things, are decentralized; for example, someone may learn about the system by noticing a sign while they are in a motor vehicle or seeing a map on a web page (or in hard-copy) or overhearing a conversation on the street. Developing a brand image and vocabulary helps different message formats reinforce one another by ensuring that the recipient understands their relationship. In this manner, a consistent and broadly-disseminated brand helps a resident understand, for example, that signage, maps, press releases, and facilities are all part of the same system.

Objective B: Develop and implement signage that clearly delineates system identification and wayfinding.

As with motorists, bicyclists, and (to a lesser extent) pedestrians have practical difficulties in referring to maps or electronic assistants while actively traveling. Signage helps bridge the gaps in travelers' mental representations of areas, relating where the user is to where they want to go. Signage also has the benefit for non-users of noting that bicyclists and pedestrians are likely to be nearby.

Objective C: Develop, publish, and disseminate a system map outlining existing and future riding and walking routes.

Using the brand mentioned above, information on the system should be sent to as wide a range of residents as possible. Putting the resulting map in multiple formats, including hardcopy and websites, helps potential users plan a trip. Electronic assistants (e.g., Google maps) allow for the route information to be uploaded to dedicated map servers so that that routing algorithms will use designated facilities rather than general city streets.[3] These services are free of charge, although the data must be formatted in a particular manner to integrate with map services.



FACILITIES PLAN

In developing the long-term vision, the guidance listed in Goal #1 (above) was translated into performance measures that were used to maximize the benefit and service area of the system:

- Number of miles located within areas with a high number of low-income households;
- Number of commercial properties;
- Number of residential properties; and
- Number of parks and facilities (including the YMCA and the public library), with special attention being paid to City Park.

The 20-year vision map shows the proposed buildout to the right shows the proposed buildout of the alternative transportation system. The system is comprised of the following elements:

Central connections (or “spokes”) of facilities that meet in Downtown Greensburg. These facilities consist of bike lanes and sidewalks along Michigan Street/US 421 and South Broadway Streets, along with existing sidewalks along Lincoln Street and bike lanes along North Broadway Street. An interior bike lane/sidewalk loop of Ireland Street, Main Street, Central Avenue, and Lincoln Street would exist close to the downtown.

Peripheral connections (a “hub”) that encircles the City, including the (existing) Rebekah Trail on the east side and Veterans Way multi-use path on the north side. The CIPP projects for Park Road multi-use pathway and Sand Creek Greenway constitute the southern element. A multi-use path along Vandalia Road extends the Veterans Way connection westward. An extension of the existing pathway on Montgomery Road will connect the Rebecca Trail to Lincoln Street and close the outer loop.

The west leg of this hub is conceptual, and its character and route will depend on identifying future land use(s) for this vicinity. One issue that will require eventual resolution is the location and character of crossing SR 3. The process for updating the City’s Comprehensive Plan, currently underway, will allow for refining these components; subsequent updates to development ordinances could require developers to implement portions of this element.

Several local connections are identified to clarify access to two important centers of activity—the Honda Plant and the YMCA. A utility easement set aside during the development of the Honda manufacturing facility was intended for alternative transportation to the plant. An existing recreational trail

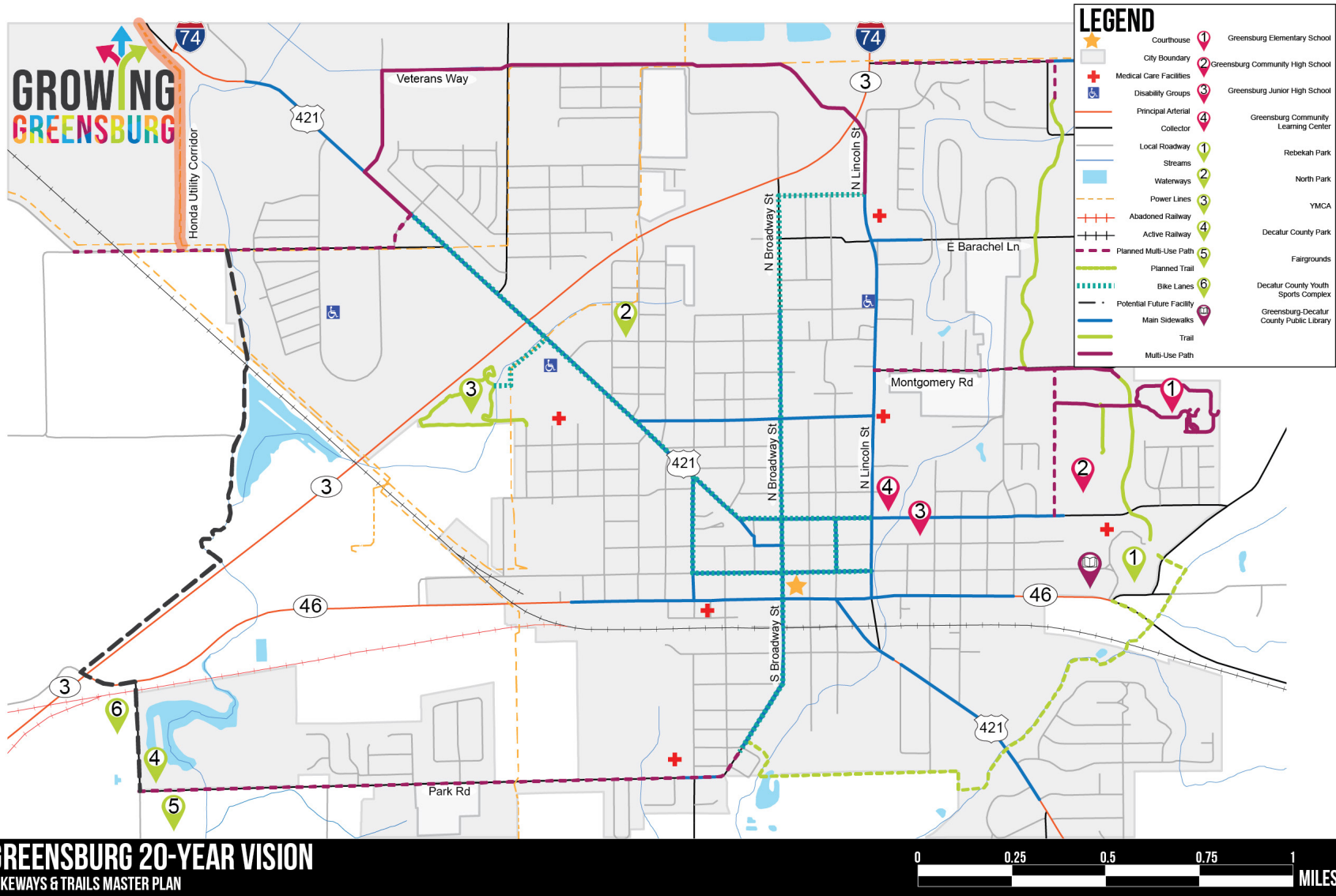
loops the YMCA property: connecting to Michigan Street would heighten its utility. The Vandalia Road multi-use pathway would allow for integrating this asset into the more extensive system.

Several distinguishing features of this long-term vision merit elaboration:

- The total length of the system, excluding local connections, is 23.7 miles. Of this length, 7.4 is existing, and 6.5 is currently accounted for in the Capital Improvement Plan and Program; approximately 10 miles of the system is new.
- The system contains “loops” of varying lengths (the outermost loop is about 10 miles in length, and the inner [downtown] loop is about 1.5 miles, with some intermediate loops of 4.5 to 5 miles). That allows for a degree of variety for recreational users.
- The system accesses all local parks, including City Park, the YMCA and the public library.
- Nearly 3,000 single-family residential and 27 multi-family residential properties lie within ¼-mile of the system.
- Over 300 commercial properties lie within ¼-mile of the system.
- Approximately 2.9 miles of the system is located within a designated low-income area. Funding for the development of these system components could conceivably come from the U.S. Department of Housing and Urban Development (HUD), which has programs that implement improvements in areas of this type.
- Interestingly, the southwestern and northeastern crossings of the system over SR 3 occur at points previously identified in the CIPP to develop gateways, that is, monuments or markers that help travelers form expectations about the community. The potential of pairing such markers with alternative transportation is a compelling opportunity.

The Capital Improvement Plan and Program components of this system estimated construction costs (excluding land acquisition) to be about \$7.2M; the new features would cost around \$1.7M, bringing the total system cost to \$8.7M.

⁶⁰ Indiana University Public Policy Institute- Indiana Traffic Safety, County-Level Crash Data. Indiana Traffic Safety Facts, Decatur County. <https://trafficsafety.iupui.edu/county/index.html>



Proposed bicycle and pedestrian network in Greensburg.
Source: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

INFRASTRUCTURE

UNIVERSAL DESIGN

Universal Design is a way of designing an environment so that it can be used and understood “to the greatest extent possible by all people regardless of their age, size, ability or disability.”⁶² If every environment is designed to meet the needs of all people who wish to use it, everyone can benefit from that design and not just a minority of the population because “if an environment is accessible, usable, convenient and a pleasure to use, everyone benefits.”⁶³ Simply put, considering a large diversity of needs and abilities throughout the design process leads to the largest number of users possible. Universal design is good design.

When Greensburg adds new or renovates public infrastructure, building universal design considerations into every step of the process is a great way to maximize the number of future users. Universal Design works best when applied at the beginning of the design process and not seen as an “add-on” to the process.⁶⁴ Reaching out to the disabled community in the area and involving them in planning decisions from the beginning is also vital for designing genuinely inclusive spaces. Groups to reach out to for input may include, but are not limited to: Disability & Autism Services Of Indiana, Help U Hear, Bridges of Indiana, and The Arc of Decatur County.

Below are the seven Principles of Universal Design from The Center for Universal Design.⁶⁵ The names of the principles are intended to be concise and easily remembered. They include a statement of the key concept embodied in the principle; a definition of the principles, a brief description of the principle's primary directive for design; and guidelines, a list of the key elements that should be present in a design that adheres to the principles. These Principles offer designers guidance to better integrate features that meet the needs of as many users as possible, but please note that all guidelines may not be relevant to all designs.

PRINCIPLE ONE: EQUITABLE USE

The design is useful and marketable to people with diverse abilities.

Guidelines:

- 1a. Provide the same means of use for all users: identical whenever possible; equivalent when not.
- 1b. Avoid segregating or stigmatizing any users.
- 1c. Provisions for privacy, security, and safety should be equally available to all users.
- 1d. Make the design appealing to all users.

PRINCIPLE TWO: FLEXIBILITY IN USE

The design accommodates a wide range of individual preferences and abilities.

Guidelines:

- 2a. Provide choice in methods of use.
- 2b. Accommodate right- or left-handed access and use.
- 2c. Facilitate the user's accuracy and precision.
- 2d. Provide adaptability to the user's pace.

PRINCIPLE THREE: SIMPLE AND INTUITIVE USE

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Guidelines:

- 3a. Eliminate unnecessary complexity.
- 3b. Be consistent with user expectations and intuition.
- 3c. Accommodate a wide range of literacy and language skills.
- 3d. Arrange information consistent with its importance.
- 3e. Provide effective prompting and feedback during and after task completion.

PRINCIPLE FOUR: PERCEPTIBLE INFORMATION

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Guidelines:

- 4a. Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.
- 4b. Provide adequate contrast between essential information and its surroundings.
- 4c. Maximize "legibility" of essential information.
- 4d. Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions).
- 4e. Provide compatibility with a variety of techniques or devices used by people with sensory limitations.

PRINCIPLE FIVE: TOLERANCE FOR ERROR

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Guidelines:

- 5a. Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous components eliminated, isolated, or shielded.
- 5b. Provide warnings of hazards and errors.
- 5c. Provide fail-safe features.
- 5d. Discourage unconscious action in tasks that require vigilance.

PRINCIPLE SIX: LOW PHYSICAL EFFORT

The design can be used efficiently and comfortably and with a minimum of fatigue.

Guidelines:

- 6a. Allow the user to maintain a neutral body position.
- 6b. Use reasonable operating forces.
- 6c. Minimize repetitive actions.
- 6d. Minimize sustained physical effort.

PRINCIPLE SEVEN: SIZE AND SPACE FOR APPROACH AND USE

Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

Guidelines:

- 7a. Provide a clear line of sight to essential elements for any seated or standing user.
- 7b. Make reach to all components comfortable for any seated or standing user.
- 7c. Accommodate variations in hand and grip size.
- 7d. Provide adequate space for the use of assistive devices or personal assistance.

The National Disability Authority notes that “Universal Design is not only applicable to the needs of people with disabilities but to everyone, regardless of age, size, ability or disability. Secondly, Universal Design is not a list of specifications; it is an approach to design that considers the varied abilities of users.”⁶² The term “Universal Design” is different from compliance with the ADA standards. ADA prohibits discrimination based on disability while Universal Design standards include the ADA's requirements but go beyond them to make the built environment accessible to even more users.⁶⁷

One example of a universal design improvement is building or repairing the ends of driveways to meet the street with as little slope as possible. Many drivers have experienced “bottoming out” their car at the end of a driveway. Those situations can be precarious for people with limited mobility and/or wheelchair users. By addressing where the driveways meet the street in a more universally designed way, residents who use wheelchairs can more safely roll onto the road, but it is also easier for everyday pedestrians and drivers.

⁶² universaldesign.ie/What-is-Universal-Design/. Copyright© 1997 NC State University, The Center for Universal Design.

⁶³ universaldesign.ie/What-is-Universal-Design/

⁶⁴ universaldesign.ie/what-is-universal-design/the-10-things-to-know-about-ud/10-things-to-know-about-ud.html

⁶⁵ The Center for Universal Design (1997). The Principles of Universal Design, Version 2.0. Raleigh, NC: North Carolina State University. projects.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm.

⁶⁶ universaldesign.ie/what-is-universal-design/the-10-things-to-know-about-ud/10-things-to-know-about-ud.html.

⁶⁷ universaldesign.ie/what-is-universal-design/the-10-things-to-know-about-ud/10-things-to-know-about-ud.html.



A utility pole blocking the middle of a narrow sidewalk will pose a problem for a wheelchair user, a person with a walker, or a mom pushing a stroller, potentially making pedestrians walk in the street to get around the pole.
Source: planning.org/planning/2018/feb/inclusivemobility/.



A signal button out of reach makes it nearly impossible for a wheelchair user to cross under the safety of the “walk” light and can be difficult for others to reach, too.
Source: planning.org/planning/2018/feb/inclusivemobility/.

Another common example is relocating utility and traffic poles in the middle of sidewalks or adjacent to ADA ramps, as seen in the image to the left.

Relocating poles such as these is beneficial to all pedestrians. A similar but less common or obvious issue is where the signal buttons at pedestrian crossings are just out of reach for those in wheelchairs, as seen in the image to the left.

While having a call button is necessary for ADA compliance, it is not helpful if everyone cannot reach it. Ensuring that a person in a wheelchair can reach the call button makes the button more useful to everyone else, especially children and seniors.

SUPPORTIVE AMENITIES

As cycling grows in popularity in Greensburg, it will be important to support riders with amenities such as bike racks, charging stations, and repair stations. There are different ways to fund cycling amenities, including “TA Set-Aside” funding, more information about which can be found on the U.S. Federal Highway Administration website. Other sources include non-profit organizations and local business owners.

Bicycle security

With the implementation of this plan, one of the first steps will be to ensure that cyclists have secure places to store their bikes throughout the city. Bike racks and lockers at anticipated destinations will be helpful early in the implementation phase, and then more can be added as ridership grows. Popular destinations are likely to be parks, schools, libraries, and restaurants and are discussed further later in this document. As seen in the image above, allowing business owners to provide bike racks of their choosing outside of their storefronts will encourage unique solutions to bicycle security concerns.



A custom bike rack at IU Ball Memorial Hospital in Muncie, Indiana. Source: Kyle Allen Johnson.

E-bikes

E-bikes are rapidly growing in popularity. Not only are e-bikes helpful for seniors and the disabled, but they can allow users of various ages and mobility levels to cycle. They can enable more people to stay active, ride farther distances, get to their destinations more quickly, and overcome hills. Cycling to run errands and even riding to commute is more obtainable with the assistance of an e-bike. And while they are more expensive than regular bicycles, they are a far more affordable alternative than electric cars for users who want to travel with zero emissions. Encouraging residents to change even some of their car trips to a bicycle or e-bike can make a significant cut to their carbon footprint.

Providing e-bike charging stations at popular cycling destinations in Greensburg will allow riders to charge their bikes while they rest after a long ride or while they visit local attractions. E-bike charging stations also provide a secure way to lock a bike while it is charged, as shown in the figure below. Several companies manufacture e-bike charging docks that are free of charge to users. With some companies, cities can have the docks installed for free and only need to provide the infrastructure access.⁶⁸



A solar-powered e-bike charging dock. Source: electrek.co.

E-BIKES IN NUMBERS



In **2019**, the electric bicycle market was estimated at **\$15.42** billion and is expected to achieve a CAGR (Compound Annual Growth Rate) of 7.49% between 2020-2025.



Between **2020 and 2023**, upwards of 130 million electric bicycles (using all battery technologies) are expected to be sold worldwide.



In **2023**, e-bike sales are estimated to reach 40 million units worldwide, generating about US\$20 billion in revenue.



By **2023**, it is expected that the total number of electric bikes in circulation around the world will reach 300 million.

The global electric bicycle market is expected to skyrocket in the following decade, achieving massive growth in North America, Europe, and Asia. Source: ebicycles.com/ebike-facts-statistics.

Repair Stations⁶⁹



A rider repairs their bike at a public repair station.
Source: theparkcatalog.com.

Every bicyclist is also concerned about whether they have enough air in their tires, and permanently located bike pumps will be a welcome sight at any school, park, or facility. Stations designed to handle all types of bicycles are the most helpful; including a bike repair station is a useful amenity that cyclists will appreciate. Bike repair stations can come with a complete set of handy tools for cyclists. Outdoor public bike pumps and repair stations will enhance any bicycle parking location or area with heavy bicycle usage.

⁶⁸ electrek.co/2020/10/18/startup-installing-free-solar-powered-e-bike-charging-stations.

⁶⁹ theparkcatalog.com/bike-repair-stations.

LEVEL-OF-SERVICE: EVALUATION RECOMMENDATIONS

It is crucial to measure the effectiveness of infrastructure projects and ensure resident funds are spent efficiently. Therefore, a series of performance measurements, or recommendations, were identified to help evaluate the impact of proposed system facilities. Given the nature of projects identified within this Bike and Pedestrian Plan, four main factors were identified to help assess the level-of-service provided by projects:⁷⁰

CONNECTIONS TO COMMUNITY LOCATIONS

The primary purpose of any trail or pathway, or the connection of two or more points, is the starting point of any systematic evaluation. While direct routes between destinations are not always possible, detouring between two locations can be limited. Limitations on the amount of available road space, number of crossings, distance, and perceived safety can significantly impact trail usage. Recommended routes need to be efficient enough for users to get around while still fitting into the city's existing road network.

Evaluating how many destinations are connected through the trail system and their locations can help identify gaps in the community's built environment. Examples of community destinations specified in the planning process are shown below. These locations were identified based on their regular number of visitors, ability to energize trail usage, and level of familiarity with Greensburg residents.

A list of destinations considered:

- Downtown Greensburg
- Rebekah Park (Tree City Bark Park), Decatur County Park, North Park
- Charles L. Buell Trail
- Greensburg School Facilities
- Greensburg Learning Center
- Greensburg-Decatur County Library
- Decatur County Family YMCA
- Honda Manufacturing Plant

LEVEL OF ACCESSIBILITY

As an alternative method for transportation, any recommended biking and walking system would have to be easy access for residents and offer a reasonable level of connectedness to the community. In addition, it should be designed with the usability and skill-level of all residents in mind.

Coverage/Facility Accessibility

Once the whole bike and trail system is in place, an evaluation should be carried out to see if the number of residents who access the trail system is maximized. The goal would be to collect trail users' information, identify how far they live from the trail, and estimate its effective "collection" range. From here, the obstacles preventing more residents from using the trail can be more effectively identified.

The original proposed bike and trail system was created around the idea of a ¼-mile buffer. This distance was used as it is the generally accepted distance of how far a typical individual is willing to travel on foot to reach a destination. It is assumed that residents up to ¼ of a mile from either side of the trail could access and use it safely and effectively. In practice, unseen obstacles or perceived barriers may distort this collection range, and an operational evaluation of the system can help remove these barriers.

Additionally, facilities should be routinely evaluated to ensure that residents with disabilities have equal access to the system. That includes ensuring maintenance of flat surfaces, that access points exist between the trail and street at regular intervals, and that any provided amenities are equally accessible.

MOVEMENT SPEED

Another element to be considered during the evaluation process is the potential movement speed of users. Users and cyclists must expect to arrive at their destination within a reasonable period for paths to be an effective alternative mode of transportation to vehicles. This evaluation includes the expected travel speed of users, the distance between identified destinations, and the intent/reason behind their travel.

Pedestrians/Walking

Walking pedestrians tend to be the majority of users of any bike and pedestrian system. These are the casual walker out for a stroll, families on their way to a nearby park, and travelers looking to go somewhere without the hassle of parking. Pedestrians tend to travel at a consistent walking speed of around 3-miles per hour, enjoying frequent rest stops and trail-side amenities.

Exercise/Fitness

Trails users focusing on their health and fitness have different parameters to consider than their walking counterparts. Whether traveling solo or in a large group, fitness users prefer trails made with more flexible materials to ease running on knee joints and wider pathways to allow easy passing of other users. Regular trail markers mark progress in terms of distance, and visual landmarks keep runners/bikers visually engaged in the environment.

Biking/Cyclists

The fastest mode of transit under consideration in this plan is that cyclists need long, uninterrupted travel segments to make biking worthwhile. With their higher speed of travel when compared to walking or running, biking is ideal along major roadways and between widely separated destinations.

While shared road facilities allow high travel speeds, they also come with higher collision risks for cyclists. As cyclists are the most likely to contact automotive traffic, a protected lane or dedicated trail is ideal for maintaining speed with safety. In some cases, an alternative route running parallel to a major roadway may be preferable for users' additional safety.

⁷⁰ Rails-To-Trails Conservancy. Trail-Building Toolbox. railstotrails.org/build-trails/trail-building-toolbox.



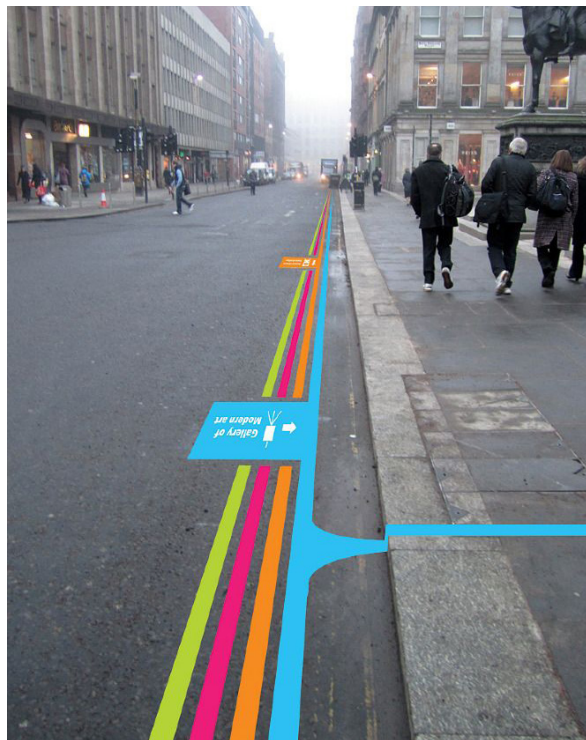
AMENITIES PROVIDED

While trails and bike lanes give an alternative means for residents to move about the community, the relatively fixed nature of these routes offers the opportunity for relatively low-cost amenities that are accessible to the majority of Greensburg residents. Part of this evaluation process is identifying what amenities have been successful and what others could be implemented.

Direct Amenities

These are amenities intended specifically for trail users only, tailored to make their travel more convenient and enjoyable. They have the greatest effect when placed at strategic and regular intervals along a trail, giving users regular opportunities for breaks and a way to measure distance covered. Some examples include:

- Shade structures/trees
- Benches/tables
- Restrooms
- Water stations (people, pets)
- Bike repair stations
- Bike racks/shelters
- Directional signage
- Greenery
- Waste bins/recycling
- Pet waste disposal
- Frequent trail lighting
- Safety stations/blue box alarm





<https://www.totalhealthphysio.com/>

Beautification

One of the most desirable outcomes of a well-thought-out trail system is the opportunity to beautify and improve the visual look of the community. That can make surrounding residences much more desirable from a market standpoint. An uninterrupted system is something residents on opposite ends of the community can share and be connected. That also goes a long way in marketing the community to visitors. Then the trail remains a consistent element throughout the community and helps build a sense of community identity among residents.

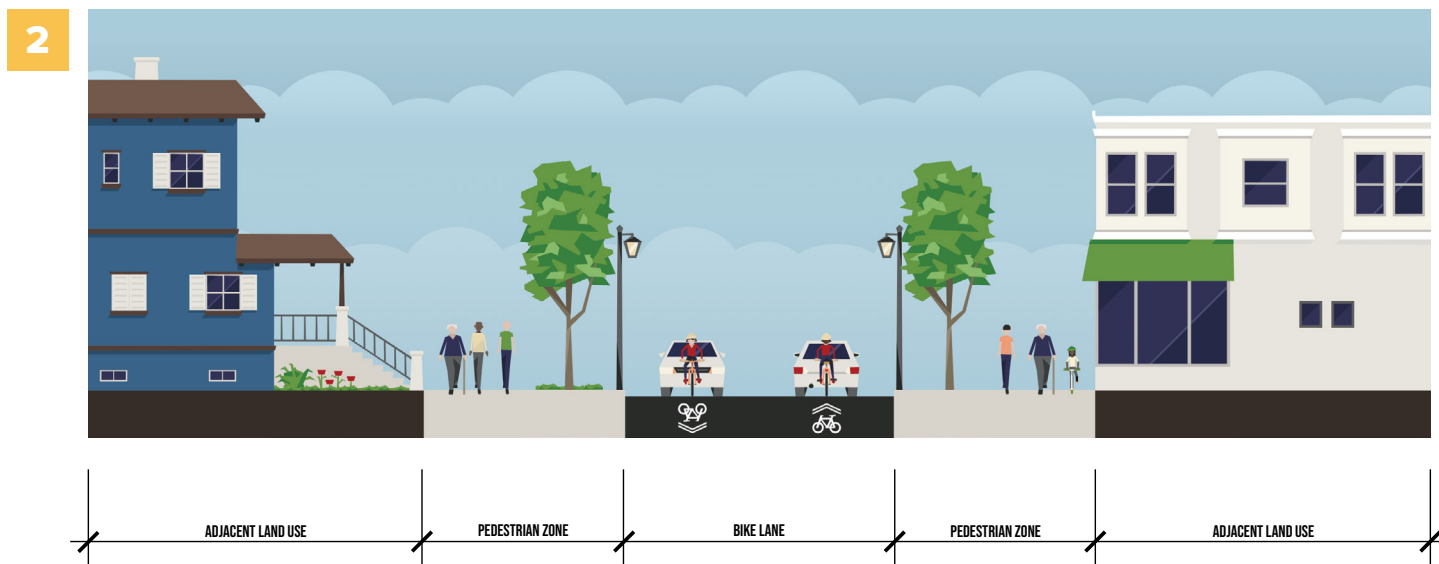
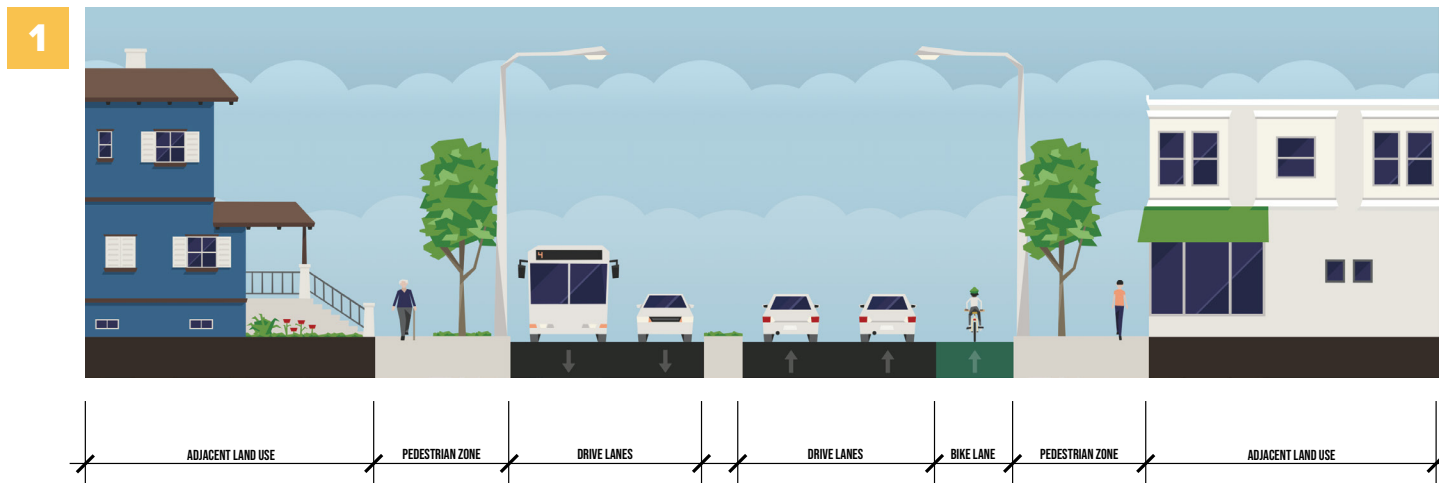
Examples of these types of efforts include:

- Landscaping, greenery, and flower beds
- Brick walkways with interesting patterns/colors
- Colorful shade structures/rest points
- Public art
- Engaging signage
- Activation of unique spaces along the path
- Active water features

TYPES OF BICYCLE AND PEDESTRIAN INFRASTRUCTURE

TYPE	DESCRIPTION	TYPICAL IMPLEMENTATION	COST	MIN ROW	RECOMMENDED APPLICATION	PROS	CONS
Bike Lane	A dedicated section of roadway for bicyclists	1	\$89,470 per mile	6.5-8.2 ft	Streets with 3,000 AADT or more, 25 mph or more	<ul style="list-style-type: none"> - Access on major streets - Visual separation of lanes between cyclists and drivers 	<ul style="list-style-type: none"> - Removes space for parking or excess vehicular travel lanes - Curb cuts and motor vehicle turning movements can create unsafe conditions
Sharrow	Bike markings on a shared roadway	2	\$250-\$339 per unit	12 ft	Low traffic residential streets with a mixed amount of bicycle and vehicular traffic, areas where bicycle facilities are needed, but there is not enough space for implementation	<ul style="list-style-type: none"> - Shared travel - Often m cost and maintenance - Can act as a placeholder to add dedicated bicycle infrastructure later - Encourages safe passing by motorists 	<ul style="list-style-type: none"> - No dedicated bicycle infrastructure - Can slow traffic - No physical separation barriers for safety
Sidewalk	Basic pedestrian facility for pedestrian travel	3	\$27 per sqft	6 ft	Ideally along all streets, specifically streets with high traffic volume where pedestrian travel alongside the roadway is unsafe	<ul style="list-style-type: none"> - Dedicated pedestrian facility - Increased safety for travel away from roadway - ADA accessible 	<ul style="list-style-type: none"> - Pedestrian use only - Maintenance is the responsibility of adjacent property owner - Poor maintenance results in unsafe and inaccessible sidewalks - Curb cuts and motor vehicle turning movements can create unsafe conditions

TYPE	DESCRIPTION	TYPICAL IMPLEMENTATION	COST	MIN ROW	RECOMMENDED APPLICATION	PROS	CONS
Bikeway	Explicitly for the use of bicyclists, a bicycle highway	4	\$89,470 per mile	11 ft	Streets with few curb cuts, streets with areas of high traffic, high speeds	<ul style="list-style-type: none"> - Ideal for high bicycle traffic - Provides efficient bicycle transportation - Provides physical separation from motorized traffic 	<ul style="list-style-type: none"> - Cyclist use only - Extra width adjacent to streets is required
On-Road Path	A facility used by multiple non-motorized users	5	Paved: \$261,000 per mile Unpaved: \$83,870 per mile	12 ft	Used for recreation and transportation adjacent to a roadway, areas of high non-motorized traffic, adjacent to a roadway that is unsafe for non-motorized traffic	<ul style="list-style-type: none"> - Shared use - Ideal for high pedestrian and bicycle traffic near roadway - Adjacent to roadway but provides physical separation 	<ul style="list-style-type: none"> - High use could cause traffic and safety issues - Extra width adjacent to streets required - Curb cuts and cross streets can create crossing challenges
Off-Road Path	Physically separated from motorized traffic by an open space or barrier	6	Paved: \$261,000 per mile Unpaved: \$83,870 per mile	16 ft	Used for recreation and transportation off-road	<ul style="list-style-type: none"> - No conflicts with motorists - No impacts on vehicular traffic - Allows all uses 	<ul style="list-style-type: none"> - Security issues, night lighting - High use could cause traffic and safety issues
Buffered Bike Lanes	Conventional bike lane with a physical buffer space to separate bicyclists from motor vehicle traffic	7	\$9.8 per sqft	2 ft buffer, 5 ft lane	Streets with high travel speeds, traffic and truck volume, streets with extra lanes or extra lane widths	<ul style="list-style-type: none"> - Provides a cushion of space between motorists and cyclists - Physical buffers increase safety 	<ul style="list-style-type: none"> - Additional space needed - Added maintenance required for buffer lane - Parked vehicle door openings require extra buffer width



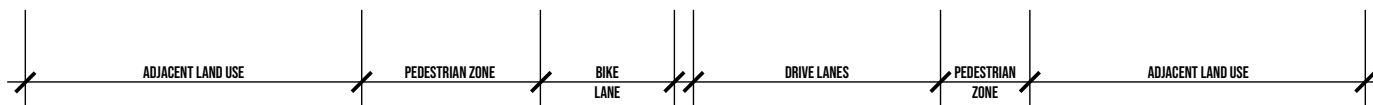
A matrix showing the recommended cross-sections for each type of bicycle-pedestrian facility with information regarding definition, cost, minimum right of way, recommended application, and pros and cons.

SOURCE: Bushell, Max A., et al. *Costs for Pedestrian and Bicyclist Infrastructure Improvements*. October 2013., Denver Igarta. *Bikeway Facility Design: Survey of Best Practices*. January 5, 2010., National Association of City Transportation Officials. *Urban Bikeway Design Guide*. April 2011. Image Source: StreetMix.

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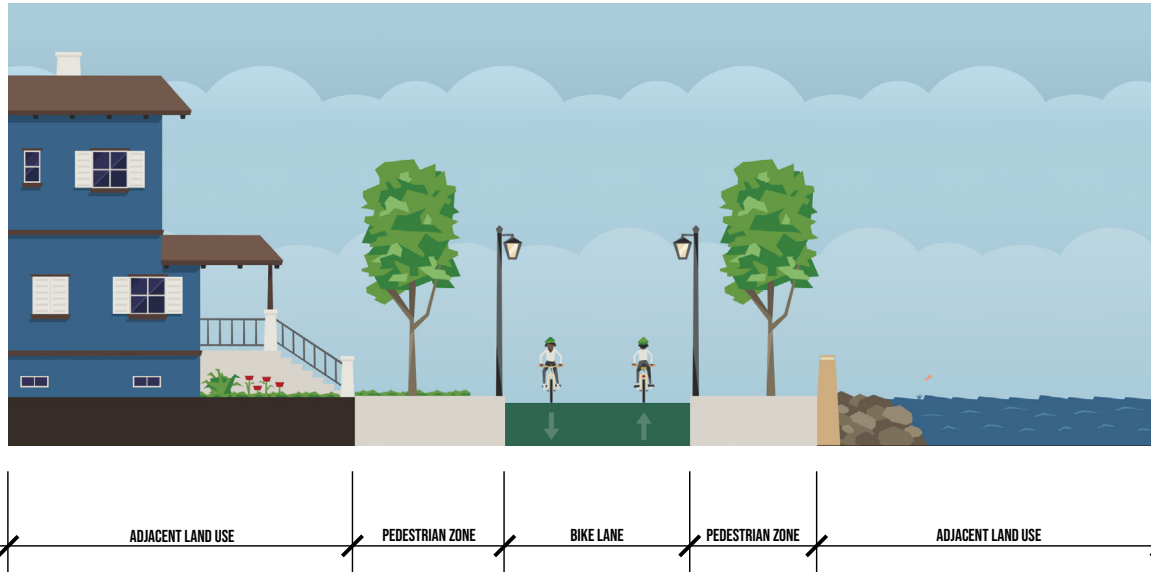
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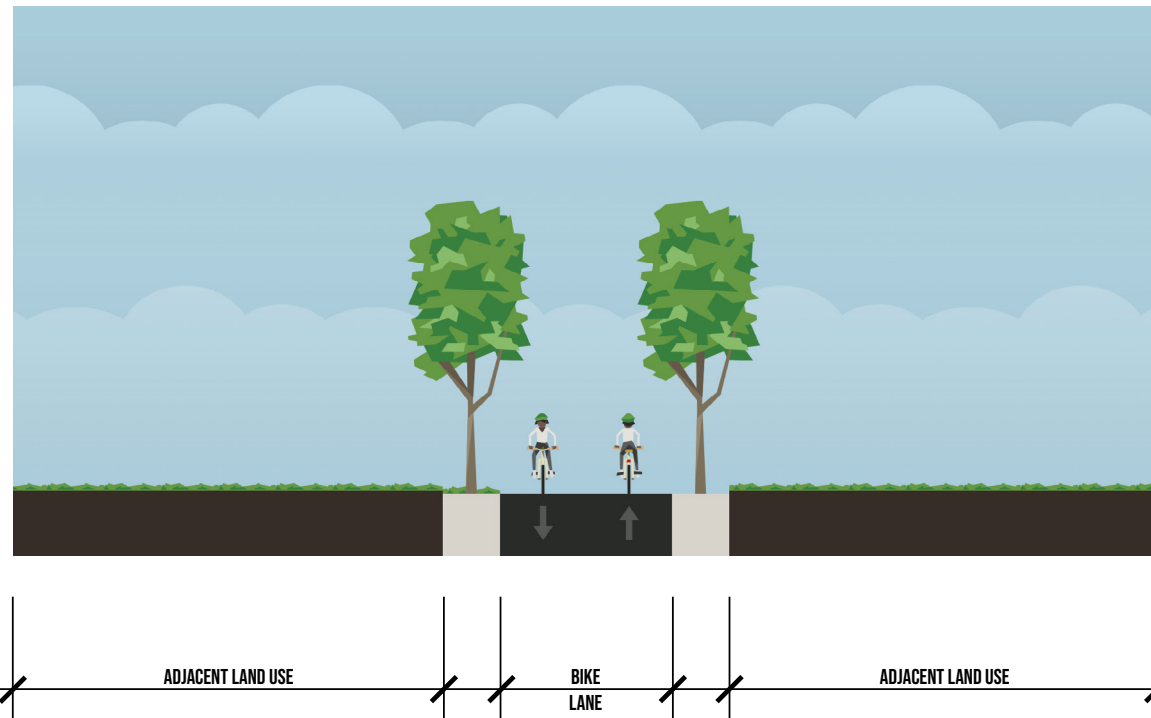
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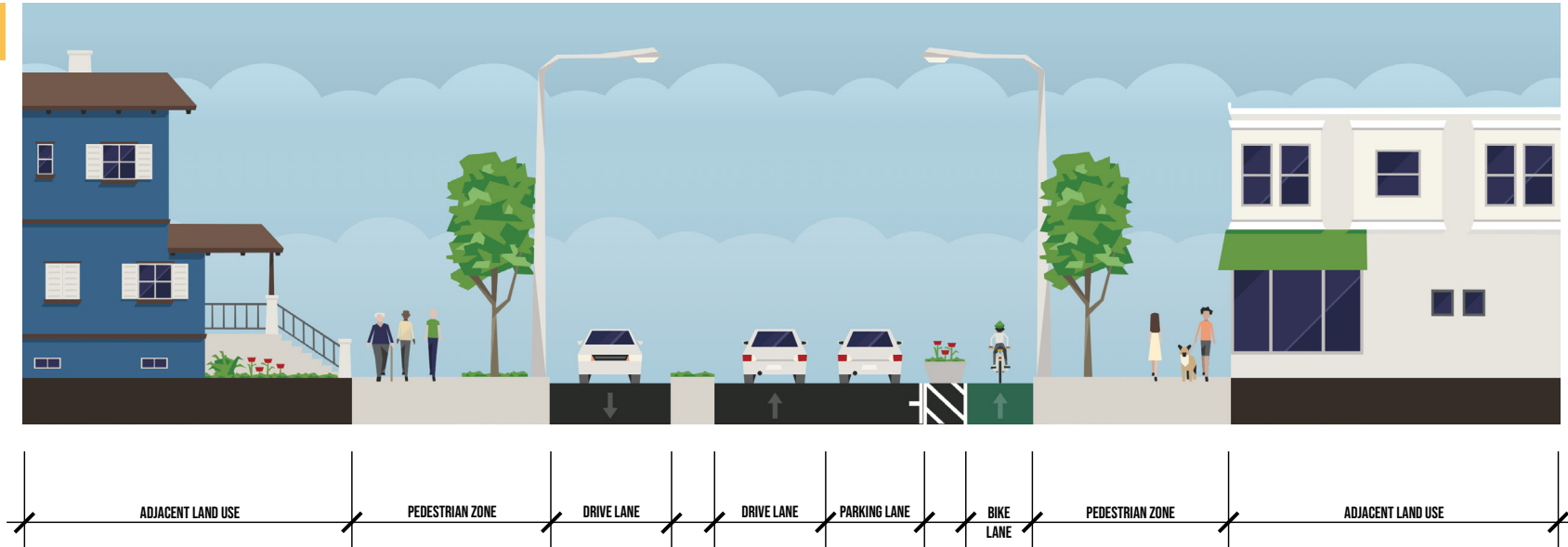
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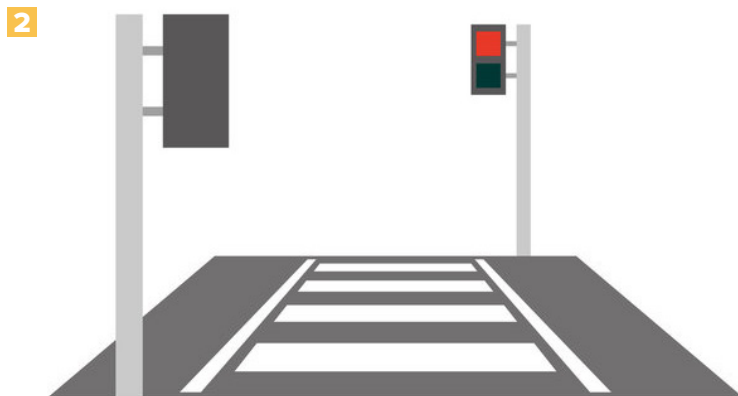
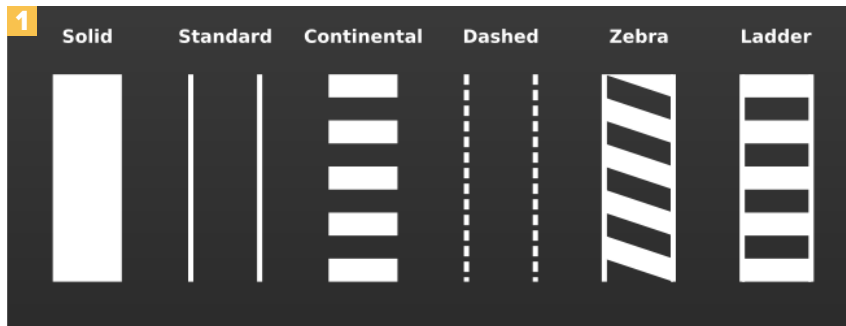


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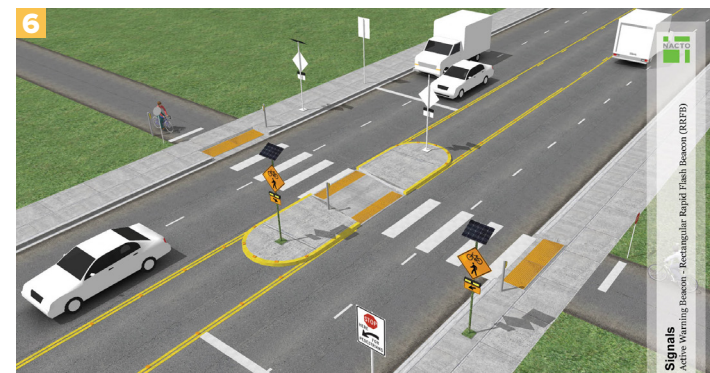
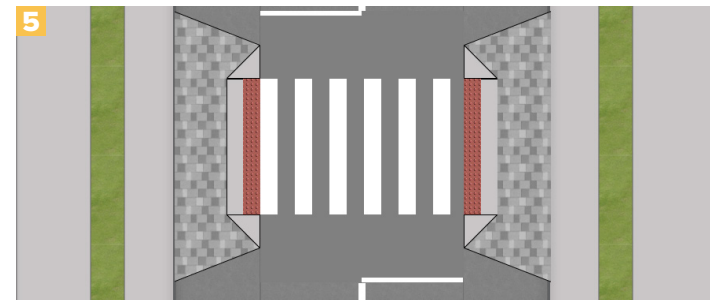
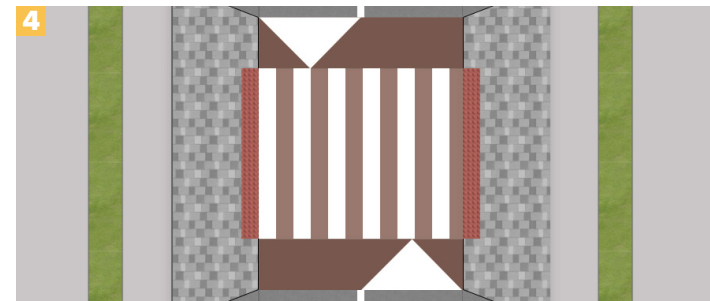
CROSSING TYPES

TYPE	TYPICAL IMPLEMENTATION	COST	PROS	CONS
Solid	1	\$6.32 per sqft	Low cost	Low visibility, increased safety risk
Standard	1	\$5.87 per linear ft	Low cost	Low visibility, increased safety risk
Continental	1	\$3,070 each	High visibility, increased safety	More expensive, higher maintenance, longitudinal markings can wear tires
Dashed	1	\$5.87 per linear ft	Low cost	Low visibility, increased safety risk
Zebra	1	\$3,070 each	High visibility, increased safety	More expensive, higher maintenance, longitudinal markings can wear tires
Ladder	1	\$3,070 each	High visibility, increased safety	More expensive, higher maintenance, longitudinal marks can wear tires
Pedestrian Traffic Signal	2	Around \$1,500 each depending on selected amenities (e.g., audible crossings, buttons, countdown timer, automatic detection, etc.)	Improved visibility for pedestrians, “red” condition to stop motorists, ideal for high pedestrian traffic	Greater delays to traffic cycle
Pedestrian Safety Island	3	\$9.80 per sqft	Ideal for longer crossings; does not disrupt both directions of traffic at once, contributes to traffic calming, provides a protected area for pedestrians	Requires enough space to install a median, conflicts with left turns, limits driveway access
Raised or Textured Crosswalk	4	\$30,000 per crossing	Increased safety; forces drivers to slow down, better pedestrian visibility, provides corridor speed control	Texture material is more expensive, could impact drainage, can increase noise of vehicles crossing
Curb Extension	5	\$5,000 per bump out	Increased pedestrian visibility, narrowing lane causes cars to slow down, allows for an on-street parking lane	Requires space to extend curb into roadway, can conflict with left-turns, limits access to driveways
Rectangular Rapid-Flashing Beacon	6	\$14,160 each	High visibility, increased safety, suitable for areas with high pedestrian traffic, increased visibility at night	Does not provide a “red” condition, can start to dim at the end of life cycle
Bike Boxes	7	\$5,000 per installation	Reduces right-turn conflicts between bicyclists and motorists, increased cyclist visibility, high visibility crossing	Public education campaign recommended; paint may need maintenance every 3-5 years



A matrix showing the recommended cross-sections for each type of crossing facility with cost analysis and pros and cons.

SOURCES: Bushell, Max A., et al. *Costs for Pedestrian and Bicyclist Infrastructure Improvements*, Denver Igarta. *Bikeway Facility Design: Survey of Best Practices*, National Association of City Transportation Officials. *Urban Bikeway Design Guide*.

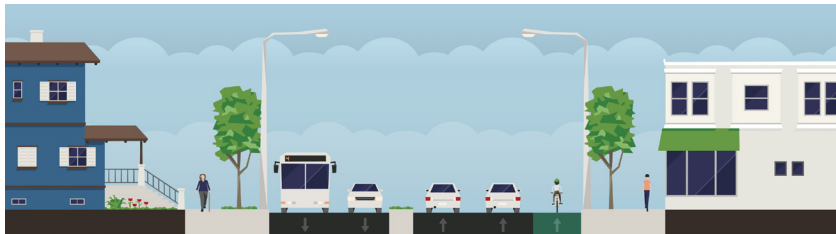


There are many different types of bicycle and pedestrian facilities. Where these facilities can and should be implemented depends on several other important factors. These factors include the available right-of-way, traffic volume, types of users, safety, and cost. The above pictures show a typical street cross-section with the added facility. This information helps visualize where a facility can and should be placed and how much roadway width the facility occupies.

These particular examples were selected for their relevance and potential applicability to Greensburg. These facilities include bike lanes, sharrows, sidewalks, bikeways, on-road paths, off-road paths, and buffered bike lanes.

Bike Lane

A bike lane is a dedicated section of roadway specifically to be used by cyclists. The recommended application for a bike lane is along roads with 25 mph or higher speeds and an annual average daily traffic (AADT) value of 3,000 vehicles or more. The minimum sq for a bike lane is between six and a half to eight feet and costs \$89,470 per mile. Some of the pros of using bike lanes include providing access on major streets and creating a visual separation of lanes between cyclists and drivers. One con of bike lanes is that implementing them can require removing parking or excess vehicular travel lanes.⁷³

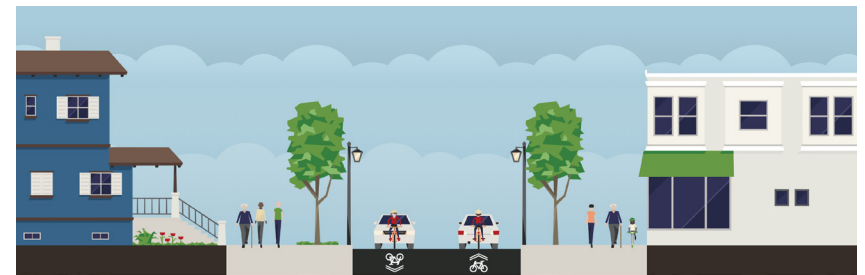


Cross-section showing standard bike lane implementation. SOURCE: StreetMix.

Sharrow

A sharrow is a shared roadway with visual bike markings along the street. Sharrows are recommended along local roads with a mix of bicycle and vehicular traffic. They are ideal for roadways where bicycle infrastructure is needed, but there is not enough right-of-way for a dedicated facility. Sharrows are relatively cheap at \$250 to \$339 per marking and can be used along roadways with 12 feet of right-of-way. Some of the pros of implementing sharrows are that they allow for vehicles and cyclists to share the lane, are usually inexpensive, and require little maintenance.⁷⁴

Some of the cons of implementing a sharrow are that they do not provide a dedicated bicycle facility, can slow traffic, and have no physical separation barriers, which provides a safety risk. Recent studies show that sharrows might be doing some harm because they encourage cyclists to move into moving traffic. While some research has found they do reduce dooring, i.e., when the door of a parked car hits a cyclist, one study found that sharrows could be increasing the risk of injury.⁷⁵ Because of the safety concerns, if sharrows are utilized, it is recommended that they only act as a placeholder where dedicated bicycle facilities will be added later. That same study also found that bike lanes were far more effective than sharrows when encouraging more cyclists to a given block.



Cross-section showing standard bike lane implementation. SOURCE: StreetMix.

⁷³ Denver Igarta. Bikeway Facility Design: Survey of Best Practices. January 5, 2010. (accessed July 26, 2021).

⁷⁴ Denver Igarta. Bikeway Facility Design: Survey of Best Practices. January 5, 2010. (accessed July 26, 2021).

⁷⁵ [bloomberg.com/news/articles/2016-02-05/study-sharrows-might-be-more-dangerous-to-cyclists-than-having-no-bike-infrastructure](https://www.bloomberg.com/news/articles/2016-02-05/study-sharrows-might-be-more-dangerous-to-cyclists-than-having-no-bike-infrastructure)

Sidewalk

Sidewalks are the typical basic pedestrian facilities that are placed adjacent to roadways for pedestrian travel. They are recommended in residential areas, areas of high traffic, and areas where there are unsafe crossings. Sidewalks are \$27 per square foot and require six feet of right-of-way. Some pros about sidewalks are that they provide a dedicated pedestrian facility, increased safety for travel away from roadways, and are ADA accessible. Some cons about sidewalks are that they are for pedestrian use only, maintenance is the adjacent property owner's responsibility, and poor maintenance can result in unsafe and inaccessible sidewalks.



Cross-section showing sidewalk implementation. SOURCE: StreetMix.

Bikeway

Bikeways are two lanes of opposing travel explicitly for the use of cyclists. They are sometimes called bicycle highways and are best implemented along roadways with speeds of 50 mph or greater where the AADT is higher than 2,000, and there is high bicycle traffic. Bikeways cost \$89,470 per mile and require 11 feet of minimum right-of-way. Some pros of bikeways are that they are ideal for high bicycle traffic, provide efficient bicycle transportation, and provide a physical separation from motorized traffic. Some cons of bikeways are that they are for cyclist use only and extra width for right-of-ways is required.⁷⁶



Cross-section showing bikeway implementation. SOURCE: StreetMix.

On-Road Path

On-road paths are pathways that are used by multiple non-motorized users adjacent to a roadway. They are best implemented in areas where there is high non-motorized traffic and traveling on the roadway is unsafe. On-road paths can be used for recreation and transportation adjacent to the roadway. Twelve feet of right-of-way is the minimum width required, and the cost is dependent on whether the path is paved or unpaved. Paved paths can cost \$261,000 per mile, while unpaved paths cost \$83,870 per mile. Some pros of on-road paths are shared use, ideal for high pedestrian and bicycle traffic near a roadway, adjacent to a roadway but provide physical separation from motorized traffic. Some cons of on-road paths are that high use could cause traffic and safety issues because bicycles and pedestrians are not separated, and extra width adjacent to the roadway is required.

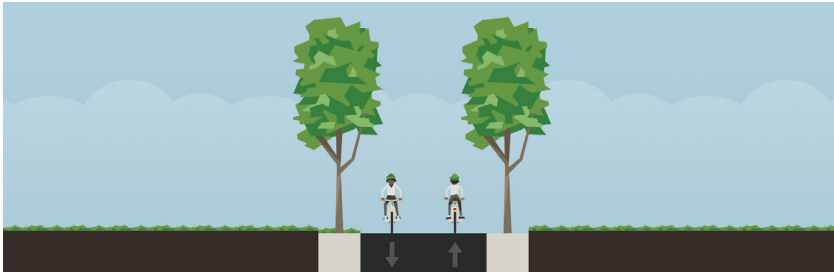


Cross-section showing on-road path implementation. SOURCE: StreetMix.

⁷⁶ Denver Igarta. Bikeway Facility Design: Survey of Best Practices. January 5, 2010. (accessed July 26, 2021).

Off-Road Path

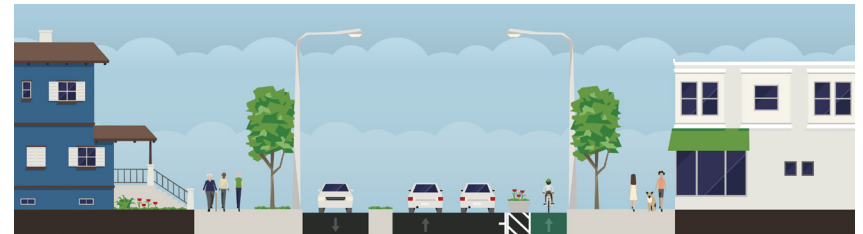
Off-road paths are pathways used by multiple non-motorized users and physically separated from traffic by an open space or physical barrier. Off-road paths can be used for recreation and transportation away from roadways. They require 16 feet of right-of-way and cost \$261,000 per mile for paved paths and \$83,870 per mile for unpaved paths. Some pros of off-road paths are that there are no conflicts with motorists, no impacts on vehicular traffic, and they allow all uses. Some cons of off-road paths are that they can have security issues because they are separated from the roadway, and high use could cause traffic and safety issues.



Cross-section showing off-road path implementation. SOURCE: StreetMix.

Buffered Bike Lane

Buffered bike lanes are similar to conventional bike lanes, except they have a physical buffer space to separate cyclists from motorized traffic. Buffered bike lanes are recommended on streets with high travel speeds, traffic, and truck volume and streets with extra lanes or extra lane widths. Buffered bike lanes require at least two feet of right-of-way for the physical buffer and five feet for the bike lane. The median cost for a buffered bike lane is \$9.80 per square foot. Some pros of buffered bike lanes are that they provide a buffer between motorists and cyclists, and the physical buffer increases safety. Some cons of buffered bike lanes are that additional right-of-way is needed for implementation, there is added maintenance required for the buffer, and if parking is adjacent to the facility, parked vehicle door openings require extra width.⁷⁷



Cross-section showing buffered bike lane implementation. SOURCE: StreetMix.



Crossings

Crossings are another important aspect of bicycle and pedestrian infrastructure as they allow dedicated non-motorized facilities to interact with motorized roadways safely. Again, many crossings are available, but the provided selection was selected because of their relevance and potential applicability in Greensburg. These crossing types include solid crosswalks, standard crosswalks, continental crosswalks, dashed crosswalks, zebra crosswalks, ladder crosswalks, pedestrian traffic signals, pedestrian safety islands, raised or textured crosswalks, curb extensions, rectangular rapid flashing beacons, and bike boxes.

There are a variety of different materials that can be used to mark crosswalks. These include paint, epoxy, polyurea, thermoplastic, and preformed tape. When deciding which material to mark crosswalks, it is important to consider the differing costs, durability, reflectivity, friction, coefficient (slip hazards), and the type of labor required to implement the material. Thermoplastic is one of the more favored materials for crosswalk markings as it does not become damaged by plows and has a longer lifespan from vehicular wear. Paint is generally used to mark crossings when there is maintenance on existing crossings or an immediate need and can usually be constructed by the city's maintenance crew. Thermoplastic, however, requires the use of an outside contractor, but the result is a higher reflective and lasting crossing.⁷⁸

CROSSWALK MATERIAL COST

Material	Cost	Lifespan	Reflectivity
Paint	\$.03-.05 per linear ft	9-36 months	Low
Epoxy Paint	\$.20-.30 per linear ft	48 months	Medium
Thermoplastic	\$.19-.26 per linear ft	72 months	Medium
Preformed Tape	\$1.50-2.65 per linear ft	48-96 months	High

Cost, lifespan, and reflectivity for common crosswalk marking materials.

Source: U.S. Department of Transportation Federal Highway Administration. "Guide for maintaining pedestrian facilities for enhanced safety research report." U.S. Department of Transportation, 2013. (accessed September 24, 2021).

⁷⁷ Denver Igarta. Bikeway Facility Design: Survey of Best Practices. January 5, 2010. (accessed July 26, 2021).

⁷⁸ U.S. Department of Transportation Federal Highway Administration. "Guide for maintaining pedestrian facilities for enhanced safety research report." U.S. Department of Transportation, 2013. (accessed September 24, 2021). https://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa13037/research_report/chap2e.cfm.

All data for this section is from “Costs for Pedestrian and Bicyclist and Infrastructure Improvements,” unless otherwise noted.⁷⁹

Solid

Solid crosswalks are low in cost at \$6.32 per square foot. However, they have low visibility to motorists, which causes an increased safety risk to pedestrians.

Standard

Standard crosswalks are low in cost at \$5.87 per linear foot. However, they have low visibility to motorists, which causes an increased safety risk to pedestrians.

Continental

Continental crosswalks are higher in cost at \$3,070 per crossing. However, they have higher visibility to motorists, which increases safety for pedestrians. They also require a higher level of maintenance, and the longitudinal markings can wear tires.

Dashed

Dashed crosswalks are low in cost at \$5.87 per linear foot. However, they have low visibility to motorists, which causes an increased safety risk to pedestrians.

Zebra

Zebra crosswalks are higher in cost at \$3,070 each. However, they have higher visibility to motorists, which increases safety for pedestrians. They also require a higher level of maintenance, and the longitudinal markings can wear tires.

Ladder

Ladder crosswalks are higher in cost at \$3,070 each. They also require a higher level of maintenance, and the longitudinal markings can wear tires. However, they have higher visibility to motorists, which increases safety for pedestrians.

⁷⁹ Bushell, Max A., et. al. Costs for Pedestrian and Bicyclist Infrastructure Improvements. October 2013. (accessed July 26, 2021).



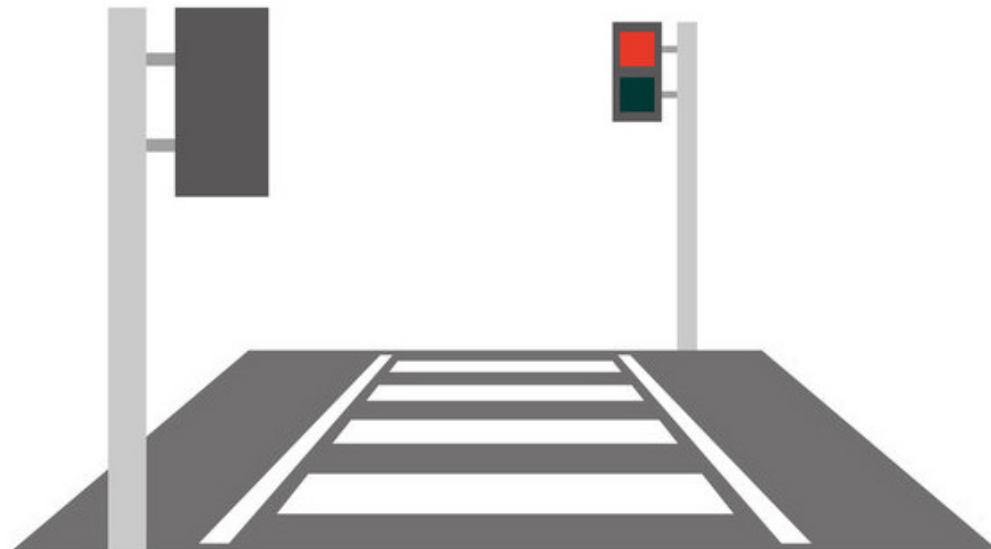
Typical crosswalk treatments include solid, standard, continental, dashed, zebra, and ladder crosswalks. SOURCE: SF Better Streets.

Pedestrian Traffic Signal

Pedestrian traffic signals provide a specifically dedicated sequence of the traffic cycle to pedestrians. Depending on the selected amenities, they are around **\$1,500 each**, including providing audible crossings, buttons, countdown times, and automatic detection. While pedestrian traffic signals can create a greater delay to the traffic cycle, they improve visibility for pedestrians, create a “red” condition to stop motorists, and are ideal for high pedestrian traffic.

Pedestrian Safety Island

Pedestrian safety islands combine traditional pedestrian traffic signaled crosswalk with a refuge island in between traffic lanes. They cost **\$9.80 per square foot**, require enough space to install or implement a median, can conflict with left-turns, and limit driveway access. However, they are ideal for longer crossings, do not disrupt both directions of traffic at once, contribute to traffic calming, and provide a protected area for pedestrians.⁸⁰



Pedestrian traffic signal. SOURCE: Adobe Stock.



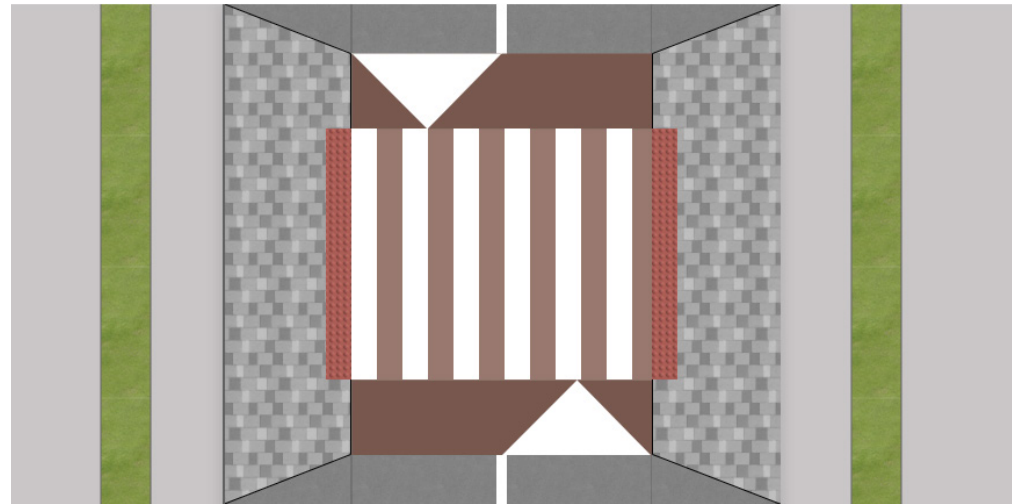
Pedestrian safety island. SOURCE: Adobe Stock.

Raised or Textured Crosswalk

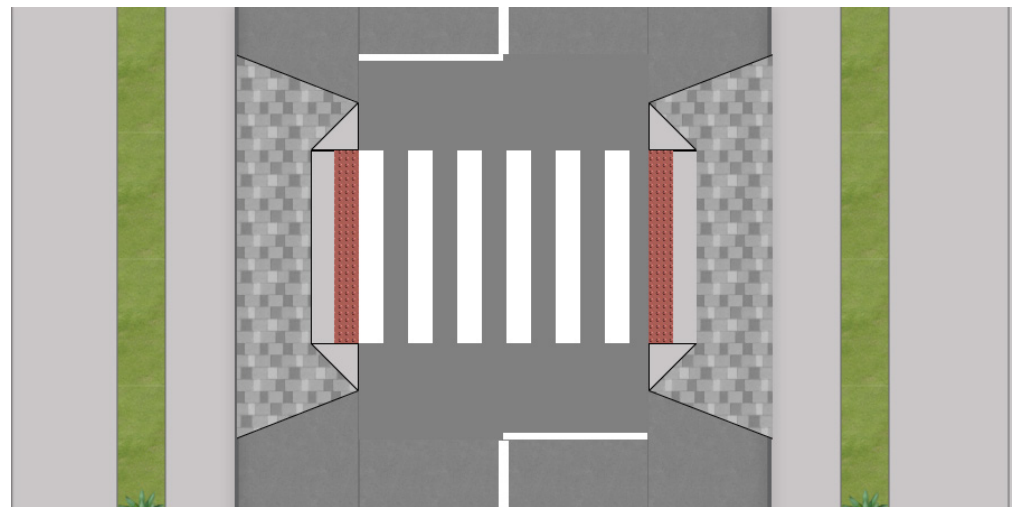
Raised or textured crosswalks take the traditional crosswalk and add a visual and physical aspect to the crossing to increase driver awareness. They are \$30,000 per crossing, although adding a textured material can be more expensive. However, raised or textured crosswalks increase safety by forcing drivers to slow down, providing better pedestrian visibility, and controlling corridor speed. Raising the crosswalk also has the potential to impact drainage and increase the noise of vehicles crossing.

Curb Extensions

Curb extensions take the traditional crosswalk and add a curb bump out into a section of the roadway. They are \$5,000 per bump out and require space to extend into the road, conflicting with left-turns and limiting driveway access. However, curb extensions increase safety by increasing pedestrian visibility and narrowing the lane to slow traffic. Curb extensions also allow for an on-street parking lane.



Raised or Textured Crosswalk. SOURCE: Abu Dhabi Urban Street and Utility Design Tool.



Typical implementation of a curb extension. SOURCE: Abu Dhabi Urban Street and Utility Design Tool.

Rectangular rapid-flashing beacons are similar to a pedestrian traffic signal, except they do not force traffic to stop. They are \$14,160 each. They do not provide a “red” condition which is both a pro and a con because while they do not impact the traffic cycle, they also do not force traffic to stop to allow pedestrians to cross. However, they provide high visibility, increased safety for pedestrians, increased visibility at night, and are ideal for areas with high pedestrian traffic.

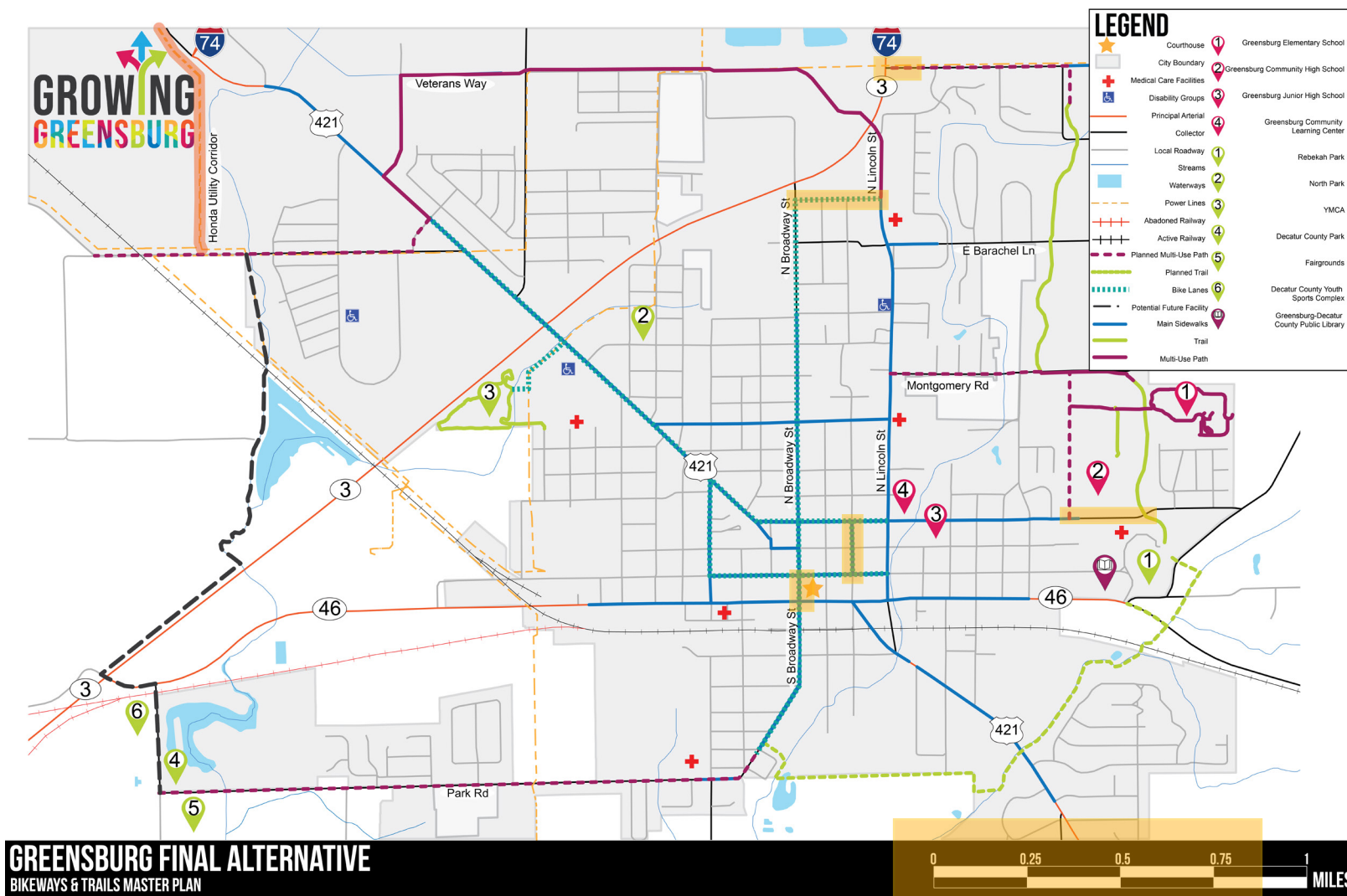
Bike boxes are designated crossings for bicycles. They are often used in coordination with a bike lane and cost \$5,000 per installation. Bike boxes allow cyclists to get ahead of traffic in the intersection queue, which reduces right-turn conflicts between cyclists and motorists and increases cyclist visibility. However, a public education campaign is recommended as many drivers and cyclists will not know how to use them. They also may require extra maintenance every three to five years to repaint.⁸¹

⁸¹ National Association of City Transportation Officials. Urban Bikeway Design Guide. April 2011. (accessed July 26, 2017).



POTENTIAL APPLICABILITY AND IMPLEMENTATION

When determining where facilities should be placed, it is essential to consider the users, traffic volume, safety measures, and destination along the route. After studying Greensburg's existing and planned facilities, potential applicability for future facilities was assessed. These facilities include a mix of bike lanes, sidewalks, trails, and multi-use paths. The periphery around the city is primarily multi-use paths as these would allow for shared uses. Along busier streets such as US 421 and **N East Street**, a bike lane and/or sidewalk is suggested and feasible with removing a vehicular traffic lane. These streets provide travel access to Greensburg's core or downtown and connect to the proposed periphery facilities.



Proposed bicycle and pedestrian network in Greensburg. Source: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

The following includes a list of bicycle and pedestrian infrastructure that can be applied within the city.

Bike Lane

The final system highlights several roadways where bike lanes can be feasibly implemented. These proposed routes are shown in the above map as a light blue dotted line. An example of where this facility can be implemented in Greensburg is along N Broadway Street. This corridor would provide access to the downtown and connect to other proposed bike lanes like those shown on north US 421. Standard bike lanes are five feet wide, so implementing them on both sides requires ten feet of pavement.

Sharrows

Sharrows (a conflation of “shared” and “arrow”) are mixed traffic lanes that have pavement markings to alert motorists to be cautious. There are currently no sharrows in the proposed final system at this time.

Sidewalks

Sidewalks are denoted on the map by a thick blue line. The final system addresses several areas in the city where there is currently a gap in sidewalk infrastructure, including N Michigan Road just south of SR 3 and connecting the sidewalk infrastructure from W Davis Street to S Broadway Street. Several of the existing sidewalks throughout the core, where it is expected that pedestrian travel will be increased, are also identified as main sidewalks. These streets include E Central Ave, W Washington St, and N Franklin St and are also coupled with a bike lane. Sidewalks are typically five feet wide if separated from the roadway and six feet wide at the curb face.

Bikeway

There are currently no bikeways in the proposed final system at this time. Bikeways are considered bicycle highways. Greensburg is beginning to provide bicycle infrastructure, so bikeways are not currently needed in the city. However, as infrastructure is put in place over time, the number of bicyclists will increase. Depending on the amount of bicycle traffic in the future, a bikeway could be a good addition in areas with high bicycle traffic. That is an important component to consider for future bicycle and pedestrian plans.

On-Road Multi-use Path

On-road paths are designated on the map by thick purple lines and are labeled as multi-use paths. Several on-road paths are already existing, such as the multi-use path along Veterans Way. Several already planned on-road paths on roadways such as E Vandalia Road, Park Road, E Freeland Road, and Montgomery Road. The proposed final system recommends connecting Veterans Way with E Vandalia Road and connecting Veterans Way with N Lincoln Street. A typical multi-use path is 10 to 12 feet wide; segments anticipated to serve higher volumes should be at least 12 feet wide.

Off-Road Path

Off-road paths are shown on the map by thick light green lines and are labeled as trails. Rebekah Trail already completes several connections depicted on the map, such as Montgomery Road and Rebekah Park. The Decatur County YMCA also has an existing trail. However, this trail mainly serves recreational users. There is also a planned off-road path to the south of the city. This off-road path connects S Broadway St to Main St by following along Sand Creek. The final system proposes a further extension to the Sand Creek trail to connect to Rebekah Park. This trail would extend further along with Sand Creek past SR 46 and cross E Base Road and N County Road 80 to link to Rebekah Park and the Rebekah Park Trail. Off-road paths are typically 10 to 12 feet wide.

Buffered Bike Lane

There are currently no specific recommendations for buffered bike lanes in the proposed final system. However, it may be beneficial to implement a buffered bike lane along US 421, where a bike lane is currently proposed. Buffered bike lanes occupy the same space as bike lanes (5 feet), with an additional 3 feet of buffer with shaded or cross-hatch markings.

Other

Additionally, one proposed conceptual connection is shown as a thick dashed black line on the map and labeled as Potential Future Facility. This route shows a connection from E Vandalia Road along a utility corridor and Muddy Fork Sand Creek to **S County Road 200 W**. That would provide access to the Greensburg Reservoir, Decatur County Park, and the Decatur County Youth Sports Complex while connecting to the larger trail system along W Park Road. While it has been expressed that this connection is desired, the actual route and facility type are still conceptual. That is because the route is widely dependent on how this area will develop in the future. This route also provides an added challenge of crossing SR 3 and SR 46, which are both high-traffic roadways.

Crossings

The proposed final alternative does not recommend specific crossing types at each facility intersection. However, the intersection of SR 3 and US 421 has been identified as another challenging yet necessary crossing. The proposed bike lane along US 421 will require added safety measures to ensure safe crossings at the SR 3 and US 421 intersection. While there are no conceptual designs at this time, it may be worthwhile to explore the possibility of a crossing facility such as a pedestrian safety island at this intersection. As a disclaimer, a feasibility study has not been conducted at this time to suggest this as a solution. More research, information, and studies may need to be completed at this specific site to facilitate the design process if the decision to pursue a crossing at this location is made.

EQUITY, DIVERSITY, AND INCLUSION

Moving forward, efforts by advocates of this plan to reach out to those who are not the typical bicyclists will enable more Greensburg residents to enjoy the new bicycle and pedestrian infrastructure.

The population of cyclists remains primarily white and primarily male, but bicycle advocates have “a social responsibility to take direct action toward tangible change within the cycling community and the community at large.”⁸²

DIVERSIFYING THE CYCLIST POPULATION

While children of color are more likely to bike to school due to a lack of transit options, the sport of cycling and many other outdoor sports maintain a high barrier to entry. In 2015, the Tampa Bay Times reviewed 12 years of data on civil traffic citations in the Tampa area and discovered that the Tampa Police Department issues an “astronomically” high number of bike tickets, overwhelmingly to Black cyclists.⁸³ From 2003 to 2015, Tampa police wrote more than 10,000 bike tickets and issued 79 percent of them to Black cyclists—even though only 26 percent of the Tampa population is Black. In one study by the Community Cycling Center, 100 percent of Black participants expressed a fear that drivers would be hostile to them while they were cycling.⁸⁴

Other groups to reach out to include, but are not limited to, women, LGBTQ+ persons, disabled persons, and those whose first language is not English. There are resources available online, mainly through the League for American Cyclists, which has many articles in the Equity section of their website. Also, PeopleForBikes includes news and grants information in the Topics section of their website to assist local cycling advocates in their outreach efforts.

OTHER ACTIONS TO TAKE

Cycling advocates in Greensburg can reach out to all underrepresented populations through means such as:⁸⁵

- Start a local cycling club and strive to build a diverse base of members. Work to keep this momentum moving as membership grows.
- Support organizations such as Black Girls Do Bike and Untokening.
- Reach out to ‘invisible cyclists,’ or those who commute by bike out of necessity. Include them in planning efforts and work towards creating safer cycling conditions for them.
- Find an organization committed to donating bikes to youth in areas with large underserved populations.

⁸² cyclingmagazine.ca/sections/feature/opinion-white-cyclists-we-must-do-better.

⁸³ aclu.org/blog/racial-justice/race-and-criminal-justice/if-youre-Black-or-brown-and-ride-bike-tampa-watch-out.

⁸⁴ communitycyclingcenter.org/wp-content/uploads/2012/07/Understanding-Barriers-Final-Report.pdf.

⁸⁵ <https://cyclingmagazine.ca/sections/feature/opinion-white-cyclists-we-must-do-better>.





OUTREACH AND EDUCATION

USER SAFETY

When municipalities decide to implement more bicycle infrastructure and increase ridership, many find it helpful to deploy an outreach and education campaign to help their residents understand the changes and make cycling safer and more fun for everyone. Not only will some residents benefit from learning to be safer cyclists themselves, but all residents could also potentially learn about the rights of cyclists, which promotes safer mobility for all while decreasing the odds that cyclists will experience harassment.

Educating the residents of Greensburg about **pedestrian safety rules will be key as the number of bicyclists rises in the future**. Outreach can take the forms of events, signage on trails, informational kiosks, online videos, social media posts, hard-copy brochures, freebies/swag, and other methods.⁸⁶

User safety education can be broadly divided into three groups: cyclists, drivers, and pedestrians. The pathway and content for education will vary depending on which group is targeted.

CYCLISTS

Cyclist education focuses on learning how to operate a bicycle in a dedicated and mixed-traffic environment safely. Several existing institutions incorporate bicycling elements in their activities and would be helpful partners in expanding bicycling knowledge. Those institutions include the Decatur County YMCA, Decatur County Parks Board, and scout troops; the latter category of organizations organizes “bicycle rodeos” in many parts of the country, where youth are tested (in a fun manner) on their ability to ride a bicycle.

The League of American Bicyclists has many instructional materials, articles, videos, and classes on their website about becoming a better cyclist, as seen below: Utilizing this information will help local cycling advocates avoid “reinventing the wheel” and start from tested and reliable safety methods and strategies. The classes provided by The League can be promoted and circulated by advocates so that Greensburg residents can take the courses directly.

⁸⁶ classhall.com/lesson/safety-rules-safety-guidelines-for-pedestrians-cyclists.



A shared pathway sign helps to educate users **about bicycle safety**. Source: Pinterest.

BUY QUICK GUIDES



Education

SMART CYCLING STORE

Help spread this important work by [buying Quick Guides](#) to share in the classroom, on the road or in your office. [Click here to preview.](#)

[LEARN MORE »](#)



Education

SMART CYCLING TIPS

These tip sheets will help you learn more about how to ride safely and perform maintenance on your bike.

[LEARN MORE »](#)



Education

SMART CYCLING VIDEOS

Are you interested in riding, but could use a little more information to help boost your confidence? Our education videos are a great place to start!

[LEARN MORE »](#)



Education

FIND A CLASS

Smart Cycling classes will not only give you confidence to ride, but connect you with other bicyclists and advocates in your area.

[LEARN MORE »](#)

The League of American Bicyclist's website contains various ways to educate the public about bicycle safety.
Source: bikeleague.org/ridesmart.

SAFETY GUIDELINES FOR CYCLISTS

Examples of some cyclist safety tips are listed below:⁸⁷

Wear a Helmet: It could save your life

Every bike ride begins with putting on a helmet and making sure it fits. Size can vary between manufacturers, so follow the steps to fit a helmet properly. It may take time to ensure a proper helmet fit, but your life is worth it. It's usually easier to look in the mirror or have someone else adjust the straps. For the most comprehensive list of helmet sizes according to manufacturers, go to the Bicycle Helmet Safety Institute (BHSI) website.

Be prepared before heading out

- Ride a bike that fits you—if it's too big, it's harder to control the bike.
- Ride a bike that works—it doesn't matter how well you ride if the brakes don't work.
- Wear equipment to protect you and make you more visible to others, like a bike helmet, bright clothing (during the day), reflective gear, white front light, red rear light, and reflectors on your bike (at night or when visibility is poor).
- Ride one per seat, with both hands on the handlebars, unless signaling a turn.
- Carry all items in a backpack or strapped to the back of the bike.
- Tuck and tie your shoelaces and pant legs, so they don't get caught in your bike chain.
- Plan your route—if driving as a vehicle on the road, choose routes with less traffic and slower speeds. Your safest route may be away from traffic altogether, in a bike lane or on a bike path.

Ride defensively

Be focused and alert to the road and all traffic around you; anticipate what others may do before they do it. That is defensive driving—the quicker you notice a potential conflict, the quicker you can act to avoid a possible crash:

- Drive with the flow in the same direction as traffic.
- Obey street signs, signals, and road markings, just like a car.
- Assume the other person doesn't see you; look ahead for hazards or situations to avoid that may cause you to fall, like toys, pebbles, potholes, grates, train tracks.
- No texting, listening to music, or using anything that distracts you by taking your eyes and ears or your mind off the road and traffic.

Ride predictably

By driving predictably, motorists understand what you intend to do and can react to avoid a crash.

Ride where you are expected to be seen, travel in the same direction as traffic and signal, and look over your shoulder before changing lane position or turning.

Avoid or minimize sidewalk riding. Riding on the sidewalk is not legal in Indiana. Also, cars don't expect to see moving traffic on a sidewalk and don't look for you when backing out of a driveway or turning. Sidewalks sometimes end unexpectedly, forcing the bicyclist into a road when a driver doesn't expect to look for a bicyclist. If you have no choice but to ride on the sidewalk, remember to:

- Watch for pedestrians
- Pass pedestrians with care by first announcing “on your left” or “passing on your left” or use a bell
- Ride in the same direction as traffic. This way, if the sidewalk ends, you are already riding with the flow of traffic. If crossing a street, motorists will look left, right, left for traffic. When you are to the driver's left, the driver is more likely to see you
- Slow and look for traffic (left-right-left and behind) when crossing a street from a sidewalk; be prepared to stop and follow the pedestrian signals
- Slow down and look for cars backing out of driveways or turning

Improve your riding skills

No one learns to drive a vehicle safely without practice and experience; safely riding your bike in traffic requires the same preparation. Start by riding your bike in a safe environment away from traffic (a park, path, or empty parking lot).

Take an on-bike class through your school, recreation department, local bike shop, or bike advocacy group. Confidence in traffic comes with navigating and communicating with other drivers, bicyclists, and pedestrians. Review and practice as a safe pedestrian or bicyclist is excellent preparation for safe riding.

⁸⁷ nhtsa.gov/road-safety/bicycle-safety.

DRIVERS

Driver education regarding how they accommodate cyclists helps drivers identify appropriate behaviors for cooperating with bicyclists for safe road operations. Since most drivers are at least minimally educated about bicycles in their driver's permit application process, motorist education should remind them of their responsibilities to share the road through signage.

The Bicycle Friendly Driver training offered by the League of American Cyclists helps keep all road users safe. Created by the City of Fort Collins, the training aims to educate motorized vehicle drivers about how and why bicyclists travel the roadways. Their objective is to develop a shared understanding for all users, which could benefit all the residents of Greensburg. Bicycle-friendly driver training information can be found at: bikeleague.org/content/bicycle-friendly-driver-training-page.

Safety Guidelines for Drivers

People on bicycles have the same rights and responsibilities as people behind the wheel of a vehicle. Examples of some driver safety tips are listed below:⁸⁸

- Yield to bicyclists as you would motorists, and do not underestimate their speed. That will help avoid turning in front of a bicyclist traveling on the road or sidewalk, often at an intersection or driveway.
- In parking lots, at stop signs, when **packing** up, or when parking, search your surroundings for other vehicles, including bicycles.
- Drivers turning right on red should **look to the right and behind to avoid hitting a bicyclist approaching from the right rear**. Stop completely and look left-right-left and behind before turning right on red.
- Obey the speed limit, reduce speed for road conditions and drive defensively to avoid a crash with a cyclist.
- Give cyclists room. Do not pass too closely. Pass bicyclists as you would any other vehicle—when it's safe to move over into an adjacent lane.

⁸⁸ nhtsa.gov/road-safety/bicycle-safety.



PEDESTRIANS

Drivers are not the only group who can come into conflict with cyclists. Pedestrian safety is a consideration when it comes to both drivers and cyclists. Educating the residents of Greensburg on the laws governing pedestrian movement and tips for being a safe pedestrian will be important moving forward.

Provided by pedbikesafe.org, the Pedestrian Safety Guide and Countermeasure Selection System is intended to provide planners with the latest information available for improving the safety and mobility of those who walk. The online tools provide the user with a list of possible engineering, education, or enforcement treatments to improve pedestrian safety and/or mobility based on user input about a specific location.⁸⁹ Their website includes other helpful information, resources, and guidelines for pedestrians and statistics on pedestrian safety, recommended guidelines for crosswalk installation, a guide for improving pedestrian safety at uncontrolled crossings, and case studies for pedestrian safety solutions.

Safety Guidelines for Pedestrians

Examples of some pedestrian safety tips are listed below:⁹⁰

- Be Safe and Be Seen: Make yourself visible to drivers
- Wear bright/light-colored clothing and reflective materials.
- Carry a flashlight when walking at night.
- Cross the street in a well-lit area at night.
- Stand clear of buses, hedges, parked cars, or other obstacles before crossing so drivers can see you.

Be Smart and Alert: Avoid dangerous behaviors

- Always walk on the sidewalk. If there is no sidewalk, walk facing traffic.
- Stay sober; walking while impaired increases your chance of being struck.
- Don't assume vehicles will stop. Make eye contact with drivers, don't just look at the vehicle. If a driver is on a cell phone, they may not be paying enough attention to drive safely.
- Don't rely solely on pedestrian signals. Look before you cross the road.
- Be alert to engine noise or backup lights on cars in parking lots and near on-street parking spaces.

Be Careful at Crossings: Look before you step

- Cross streets at marked crosswalks or intersections, if possible.
- Obey traffic signals such as WALK/DON'T WALK signs.
- Look left, right, and left again before crossing a street.
- Watch for turning vehicles. Make sure the driver sees you and will stop for you.
- Look across ALL lanes you must cross and visually clear each lane before proceeding. Even if one motorist stops, do not presume drivers in other lanes can see you and will stop for you.
- Don't wear headphones or talk on a cell phone while crossing.

⁸⁹ pedbikesafe.org/PEDSAFE/index.cfm.

⁹⁰ pedbikeinfo.org/resources/resources_details.cfm?id=5167.





HELPFUL FACTS

Americans overwhelmingly drive to go to work, run errands, go to appointments, and socialize.

This bicycle-pedestrian plan will help the residents of Greenwood move toward more active transportation methods and reduce their car dependency. Reducing car dependency can have significant impacts on human physical and mental health, the health of our local economies, and the health of the planet. When Greensburg cycling advocates begin to do outreach to promote new bike-ped infrastructure, here are some helpful facts to get them started:⁹¹

HOW WE TRAVEL

87% (a trip from one point to another on a single day) take place in personal vehicles

91% people commuting to work use personal vehicles

HOW MANY TRIPS WE TAKE EVERY DAY

1.1 BILLION Americans take 1.1 billion trips a day — **four for every person in the U.S**

11 BILLION U.S. daily travel averages 11 billion miles a day — almost 40 miles per person per day

HOW MANY TRIPS WE TAKE IN A YEAR

411 BILLION Americans take 411 billion daily trips a year or about **1,500 trips per person**

4 TRILLION MILES U.S. daily travel totals about 4 trillion miles **14,500 miles per person**

WHY WE TRAVEL

45% DAILY TRIPS taken for shopping and errands

27% DAILY TRIPS social and recreational, such as visiting a friend

15% DAILY TRIPS taken for commuting

WHAT WE DRIVE

204 MILLION personal vehicles available for regular use

45% cars or station wagons

21% vans or SUVs

19% light trucks

WHEN WE TRAVEL

16% The most daily trips are made on **FRIDAY**

13% The fewest daily trips are made on **SUNDAY**

5.5% daily trips are taken between noon and 1 p.m.
7.4% daily between 8 a.m. and 9 a.m

THE AVERAGE DRIVER

55 MINUTES a day behind the wheel

29 MILES a day

THE DISTANCE WE TRAVEL OF ALL VEHICLE TRIPS⁹²

60% were less than **six miles**

3/4 are **10 miles or less**

8.4% were between 11 and 15 miles, with the **three longer trip distance categories about 5% each**

95% are **30 miles or less**

A trip of fewer than six miles can be quick and convenient for a pedestrian or cyclist, provided they have safe and efficient routes to reach their destinations. Trips of longer distances are also obtainable for many people without using a car, especially if they utilize an electric bike, or e-bike. E-bikes will be discussed later in this document.

⁹¹ bts.gov/statistical-products/surveys/national-household-travel-survey-daily-travel-quick-facts.

⁹² energy.gov/eere/vehicles/articles/fotw-1042-august-13-2018-2017-nearly-60-all-vehicle-trips-were-less-six-miles.

ENFORCEMENT⁹³

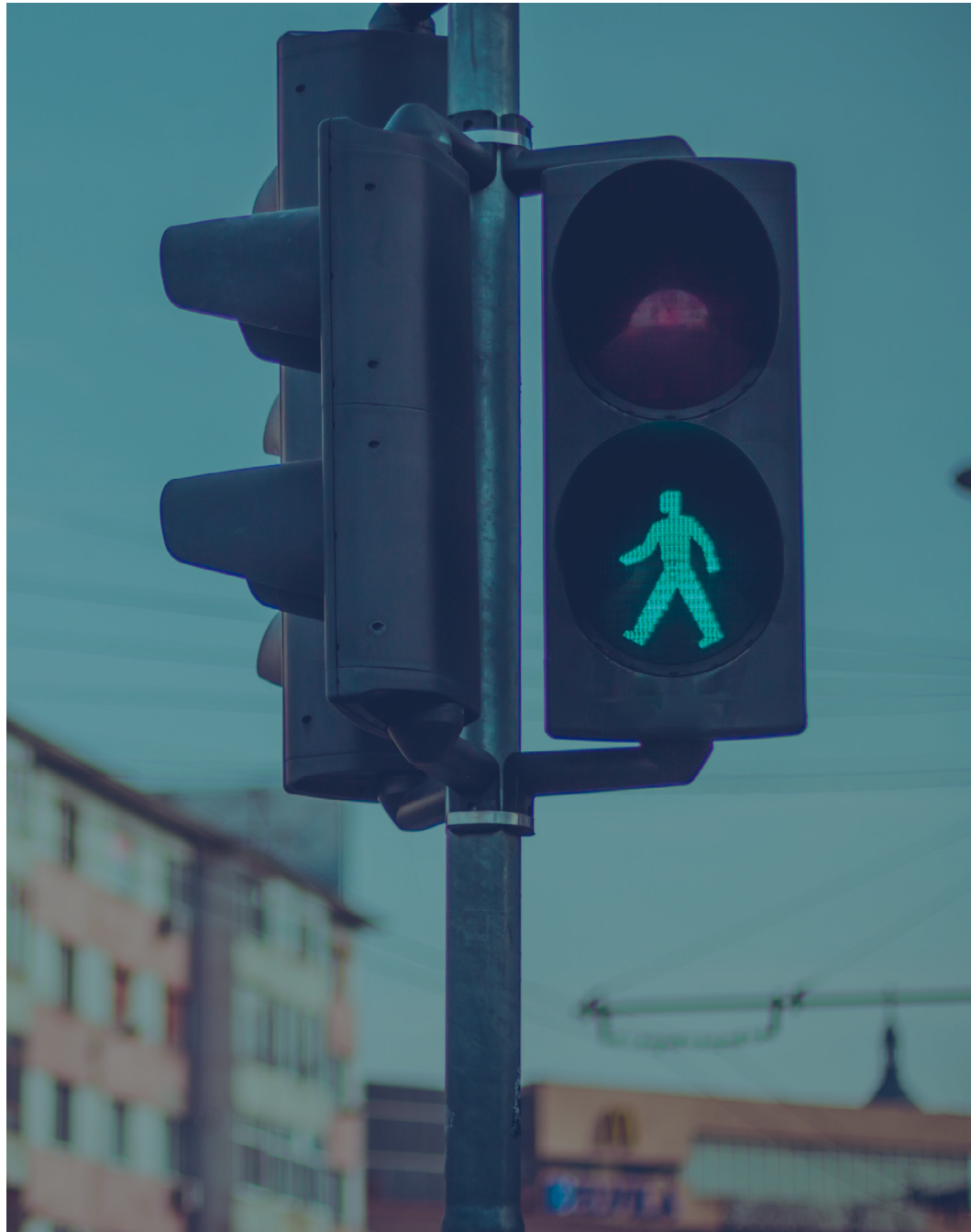
Bicycle riders are usually the focus when people consider how bicycle laws are enforced.

Cyclists do run red lights, ride on the sidewalk, or ride at night without lights. However, many bicycle crashes are caused by the behavior of motorists. Drivers may not realize the impact of riding too close to a cyclist or speeding past a rider just to cut in front of them and make a right turn. Good law enforcement strategies will target cyclists and motorists and focus on behaviors that cause the greatest fear or danger.

Law enforcement officers are trained to use the least amount of force necessary to comply with the law. Therefore, most enforcement actions do not result in a citation. Enforcement options first include positive reinforcement, then verbal and written warnings, and lastly, citations. Ultimately, law enforcement officers are the only ones who can enforce laws, both for bicyclists and motorists.

The International Police Mountain Bike Association has resources for enforcing cyclist and driver laws on their website at this link, including a helpful Q&A.

⁹³ ipmba.org/blog/comments/practical-tips-for-enforcement-based-education.



FIVE-YEAR IMPLEMENTATION PLAN

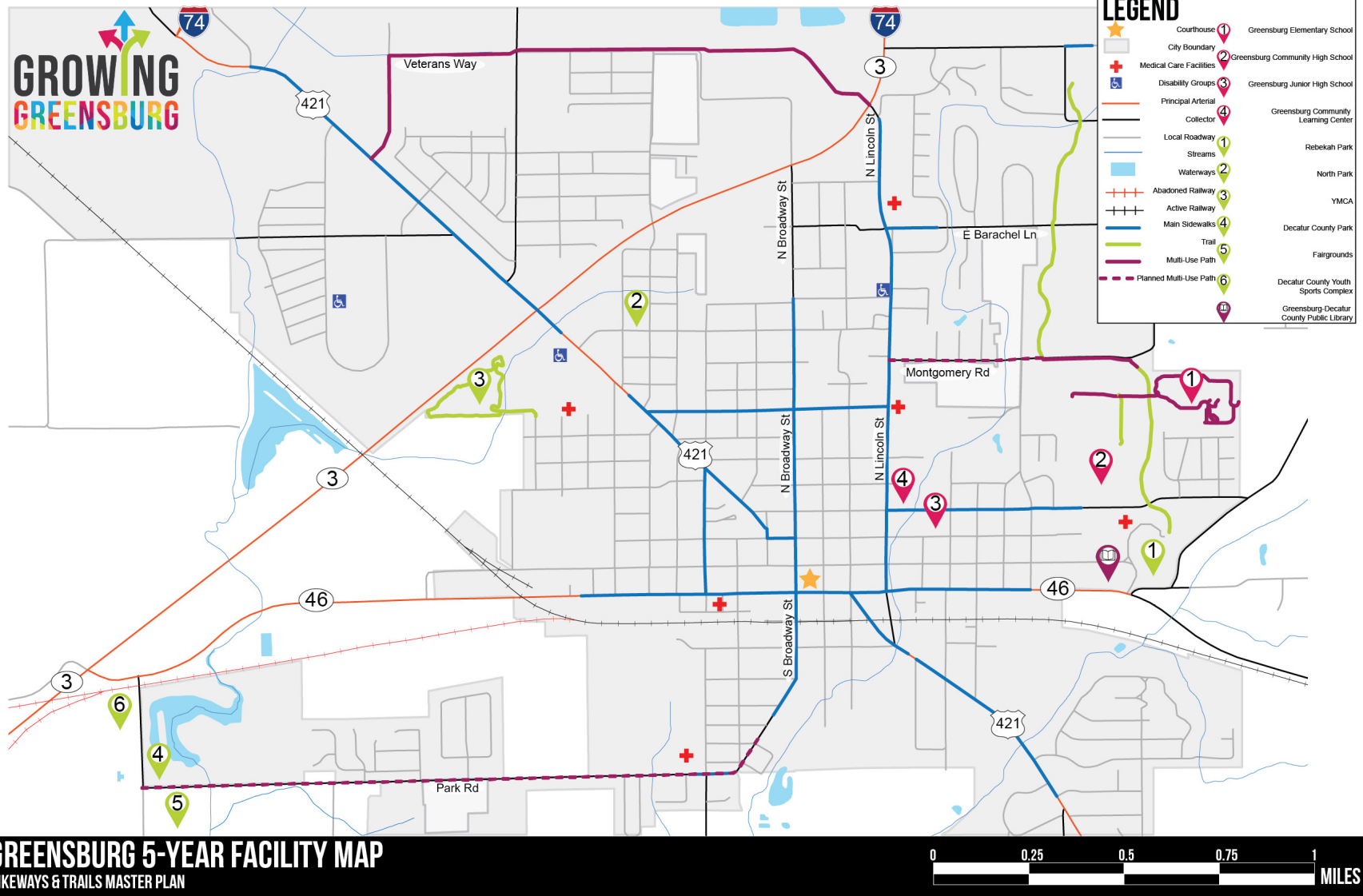
The “20-year vision” discussed above discusses the target at which current activities should be aimed, comprehensively considering all of the projects and policies needed to make that end state a reality.

By contrast, this section focuses on the shorter-term actions that provide a foundation for subsequent endeavors, giving guidance for (approximately) the next five years. Activities from the “20-year vision” are prioritized when they meet one or more of the following criteria (in no particular order):

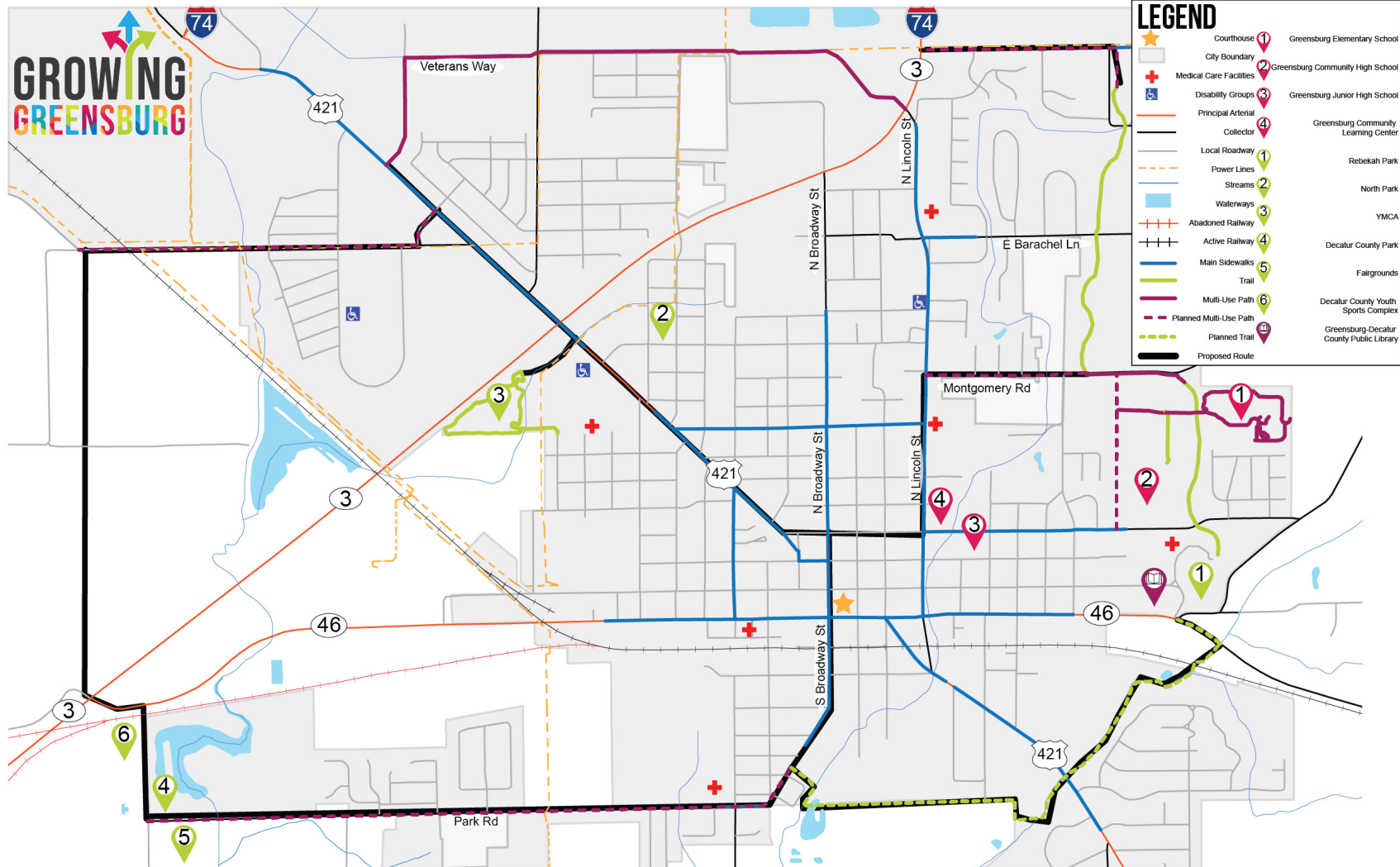
- The activity addresses urgent needs pertaining to the safety of users of the alternative transportation system.
- The activity is considered “low-hanging fruit,” i.e., it is a high-value action that has a minimal cost and can convincingly demonstrate progress towards the system’s goals, helping to generate excitement and secure resources for subsequent activities.
- The activity represents an early stage of a multi-phase project, such as conducting engineering and design for a later activity.
- The activity has a more transparent public and political rationale than other activities.
- An external event, such as the availability of new funding or co-locating a facility with another project (road reconstruction, for example), creates an opportunity for advancing the project.

Not all of these circumstances can be accurately predicted, but a reasonable five-year prioritization of implementation activities can be identified to the extent that they are known.

It should be noted that the Greensburg Capital Improvement Plan and Program (CIPP) already outlines a five-year schedule for improvements: that is what the “program” element of the CIPP is. Those projects include significant activities such as the Park Road reconstruction, including its multi-use pathway. As of the writing of this document, the funding for this project has not been identified.



Existing paths, trails, and infrastructure to be in place within five years in Greensburg.
Source: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP



Map showing proposed route that combines the best features from each alternative.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

Priorities for implementation in the first five years of the plan include the following:

PARK ROAD MULTI-USE PATHWAY

This project anchors the southern periphery of the system and provides access to a key destination (City Park) that has near-universal public and political support. It is also a project that will likely require multiple implementation phases such as engineering, right-of-way acquisition, funding identification, and construction, and therefore will need longer to implement.

MONTGOMERY ROAD MULTI-USE PATHWAY

Elevating this segment for implementation alters the priorities listed in the CIPP, which instead has the Big Blue Road and Freeland Road multi-use pathways assigned for implementation in the next five years. However, the Freeland Road project appears to set up a design dilemma at the confluence of SR 3/Lincoln Street/Greenview Drive, which could be avoided by connecting Rebekah Trail to Lincoln Street via Montgomery Road and the Big Blue Road project. In contrast, a worthy project contributing to local access contributes little to developing a citywide transportation system.

MICHIGAN ROAD SIDEWALKS

A gap exists in the sidewalk along Michigan Road south of SR 3, from Kathy's Way to Park Street. Addressing this issue would allow better access to the businesses in this vicinity and **interconnect the west and east sides of SR 3.**

BRANDING DEVELOPMENT

Several promotional and educational activities identified below would benefit from developing a unified brand encompassing the existing and proposed system. The City may hire a communications consultant to assist with the branding process or create one internally with its resources. Considerations for the brand include the following (in no particular order):

- The City of Greensburg's logo and communications elements
- Communications elements from the Decatur County Department of Parks
- Legibility of the logo on a sign face (see below), including the size of elements, fonts, and colors
- Legibility of the logo on the system map (see below)
- Public appeal of the brand

SIGN FACE DEVELOPMENT AND IMPLEMENTATION (DEPENDENT ON THE NEW BRAND)

One of the first uses of the new brand would be in the application of signage to identify existing system routes. Although most traffic signs are 12" x 18", it is recommended that route signage be a minimum of 18" x 24" and possibly as large as 24" x 30". Once designed, signs should be placed at intervals of ¼- to ½-mile for off-street facilities and every two to three blocks for on-street facilities. New signage placements would be incorporated into the implementation of additional facilities.

EDUCATIONAL MATERIALS PREPARATION AND COORDINATION (DEPENDENT ON THE NEW BRAND)

The City should engage in discussions with known partners, such as the YMCA and the Decatur County Parks Department, and new partners, possibly including local girl and boy scouts organizations, on the curricula and delivery methods for driver and bicyclist education.

SYSTEM MAP DEVELOPMENT (DEPENDENT ON THE NEW BRAND)

The map should include existing and planned routes, as well as pertinent bicyclist and driver information. A hard copy of the map should be published to be disseminated at public events and posted on the websites of the City and its partners. As updated when new facilities come online, the route system should be uploaded to Google Maps to inform its trip routing algorithms.⁹⁴

POLICY DEVELOPMENT

Once the City's comprehensive plan process has been completed, work should begin updating development ordinances; this initiative should include considerations and requirements for incorporating bicycle and pedestrian facilities into new developments.

MONITORING OF TRENDS

Several issues will require ongoing surveillance. The City should assign responsibilities for monitoring these issues regularly, including the following:

Accidents involving pedestrians

As a unit of local government, the City has access to the ARIES crash database system maintained by Purdue University for the Indiana State Police. This database contains statistics on the types of motor vehicle crashes incurred at particular locations. The City engineering office should periodically review this database for accidents that involve pedestrians and highlight high-incident sites. Crashes along SR 3 should be of particular concern.

Development trends and the comprehensive plan

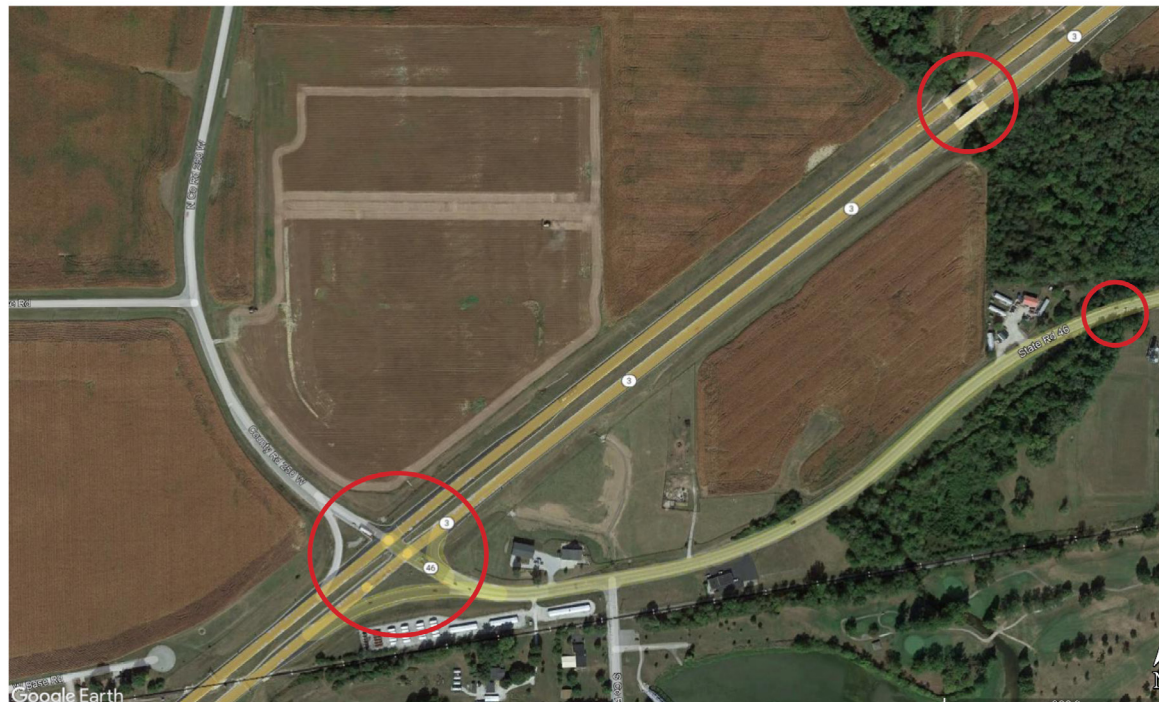
As noted elsewhere, the western leg of the planned system “loop” is conceptual. Its final form and requirements depend on the location and character of development west of SR 3. The City Planning department should annually review development in the western corridor to determine if adjustments to the route are necessary and whether sufficient information has accrued to identify a preferred design (bike lane, multi-use path, etc.).

Usage counts

The City engineering and planning office should collaborate on annually collecting pedestrian counts at key locations, including (but not limited to) key points on Rebekah Trail; crossing locations along SR 3; Lincoln Street; and points in the downtown.

A key determinant of the feasibility of this outcome within five years is the availability of funding. As noted elsewhere, various State and local funding sources are being investigated for the Park Road multi-use pathway project; funding for Sand Run could come from multiple sources, including the transportation alternatives program mentioned on page XX. The sidewalk project along Michigan Road falls squarely within the Community Development Block Grant’s (CDBG) funding eligibility area. However, coordination with OCRA is recommended to confirm the eligibility of the activity.

Several problem areas exist that will require focused study, generally pertaining to the crossings along State highways. SR 3 is a particular concern, owing to the general lack of existing pedestrian infrastructure, the wide crossing width, the high average vehicle speed, and the cumulative effect on vehicular congestion of adding pedestrian crossing intervals to multiple traffic signals. Another area of concern is the crossing of the Sand Run trail over Main Street since the crossing takes place at a transition in vehicular speeds.



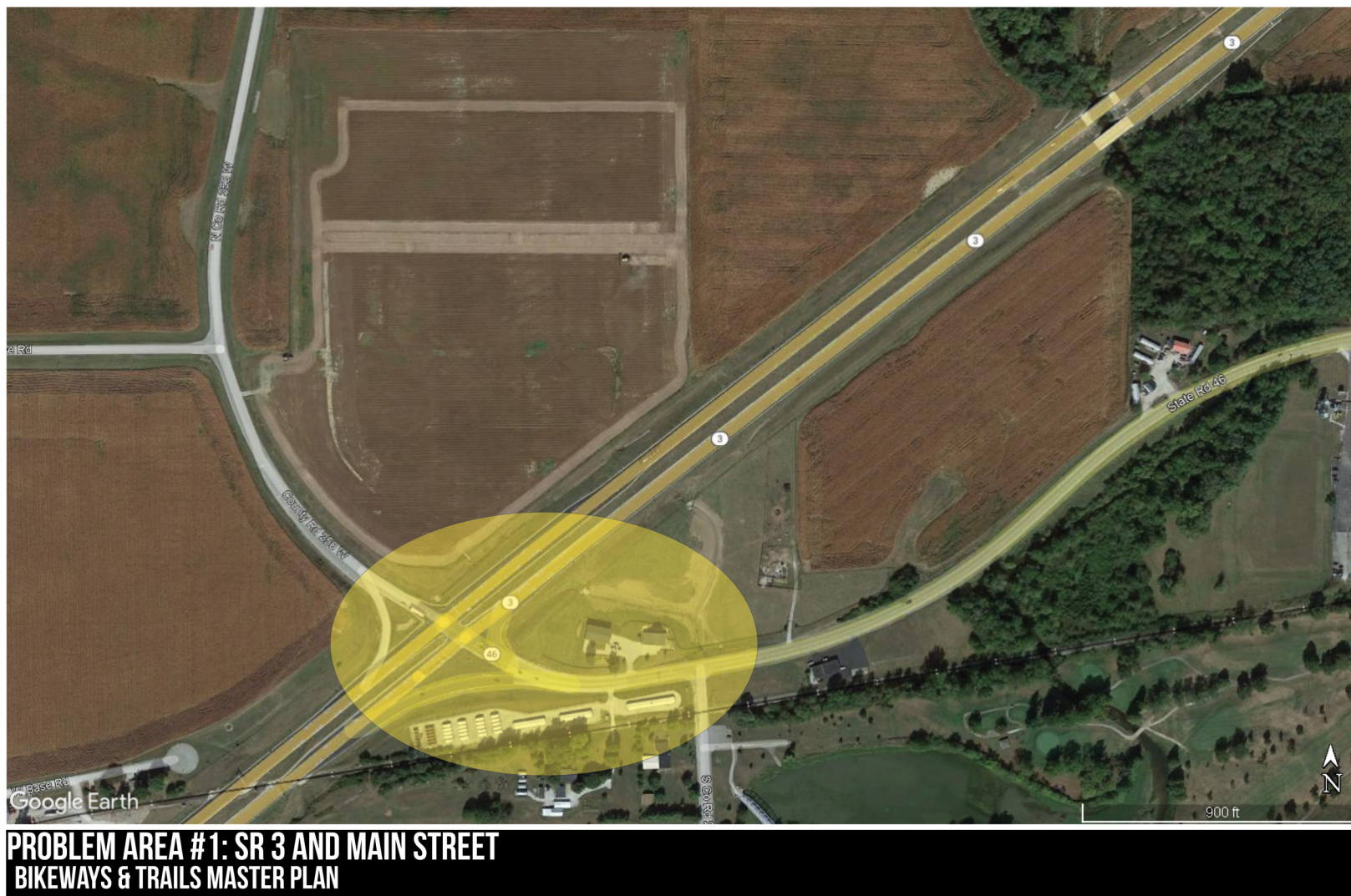
POTENTIAL CROSSINGS ON SR 3 AND SR 46
BIKEWAYS & TRAILS MASTER PLAN

Potential crossing locations for a potential future facility near SR 3 and Main Street.
Source: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP

⁹⁴ blog.google/products/maps/ride-easy-new-biking-features-google-maps/.

PROBLEM AREAS

The 20-year plan has several areas that merit further attention and study, owing to the interaction of bicycles and pedestrians with motor vehicles, particularly on heavy-volume highways. The four “problem areas” are noted below.

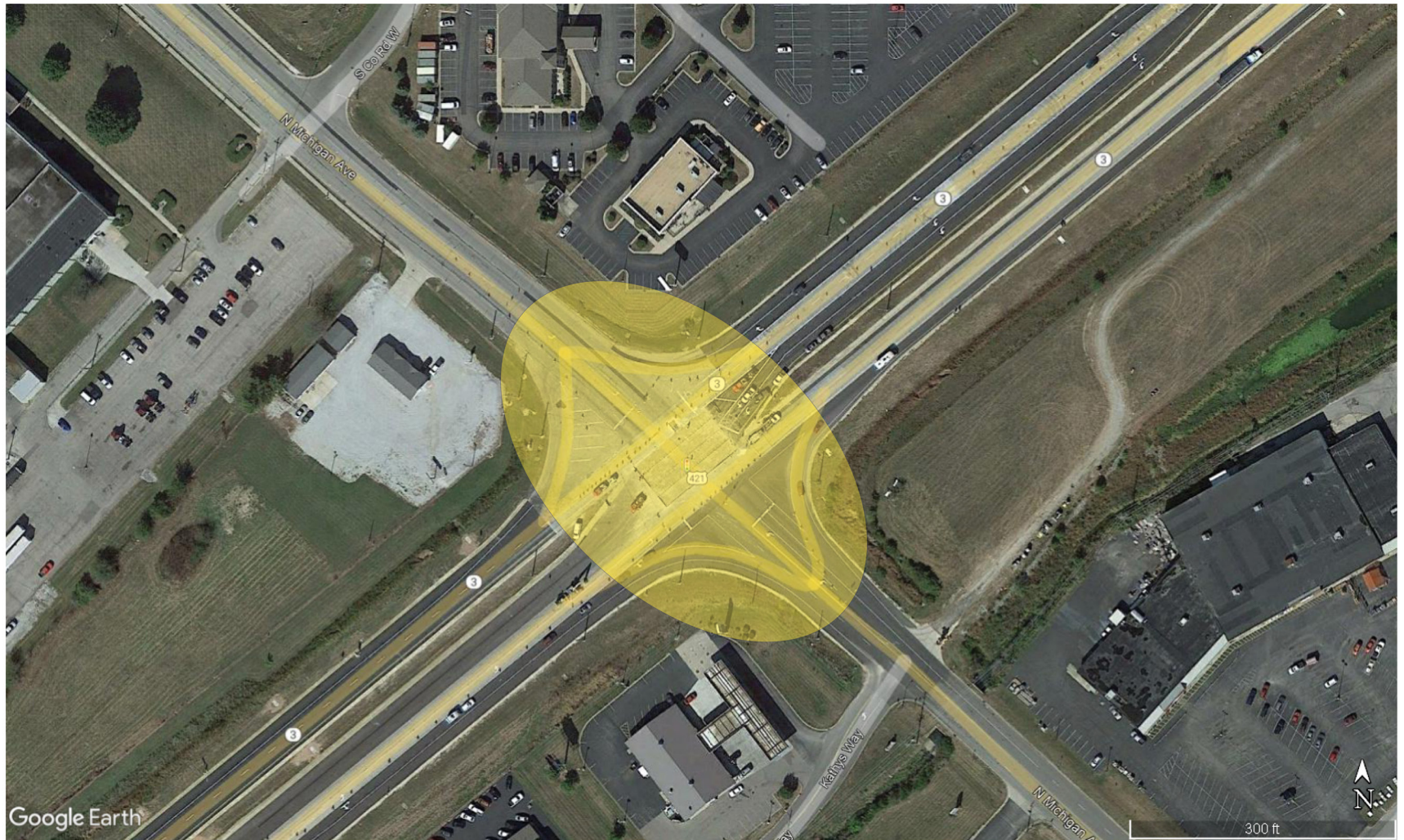


**PROBLEM AREA #1: SR 3 AND MAIN STREET
BIKEWAYS & TRAILS MASTER PLAN**

Potential area of conflict at SR3 and Main Street.

SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

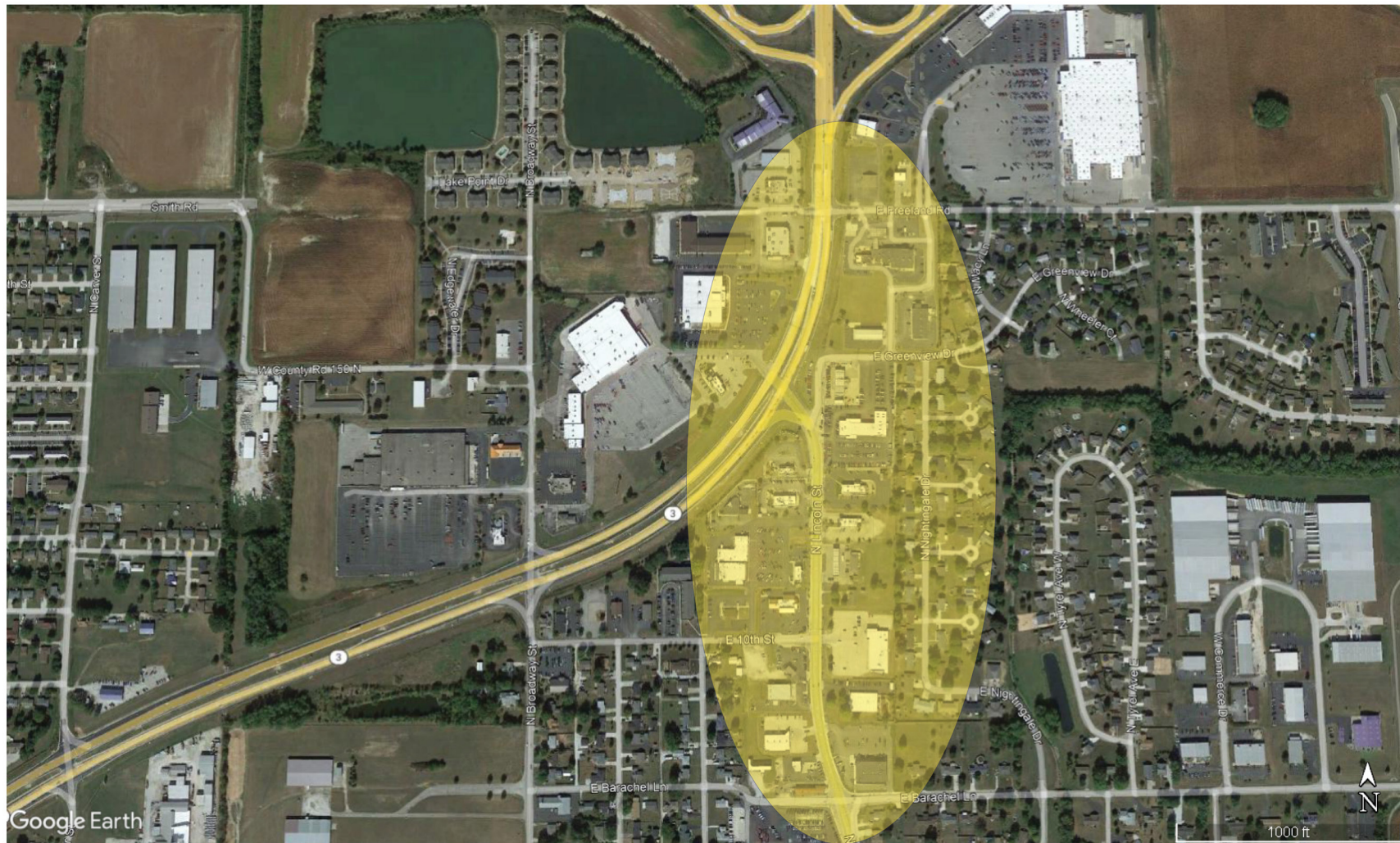
PROBLEM AREAS



PROBLEM AREA #2: SR 3 AND US 421 BIKEWAYS & TRAILS MASTER PLAN

Potential Area of Conflict at SR 3 and US 421.

SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.



**PROBLEM AREA #3: SR 3 AND LINCOLN STREET
BIKEWAYS & TRAILS MASTER PLAN**

Potential Area of Conflict at SR 3 and Lincoln Street.
 SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

PROBLEM AREAS



PROBLEM AREA #4: REBEKAH PARK AND MAIN STREET BIKEWAYS & TRAILS MASTER PLAN

Potential Area of Conflict at Rebekah Park and Main Street

SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

ACTIONS NEEDED

FUNDING PROCUREMENT

When carrying out improvements in their communities, cities universally face a shortage of funds and struggle to pay for projects. There is just never enough money to pay for all the projects a community would like to implement.

Fortunately, not only are there a wide variety of funding sources for healthy and impactful development like trails and bike lanes but they can also be mixed and matched together for the same project. That helps alleviate some of the initial burden of the cost and gives it more financial reach in pursuing more significant projects. The following are some of the more typical funding sources with short summaries on how their funds could be used.

Specific grants and detailed explanations of funding tools can be found later in the Financial section of this document.

FEDERAL SOURCES

Some of the most significant and most widely available funds are those provided by the Federal government and its various departments and agencies. These are typically tailored for a specific purpose and are handed out either directly to projects or states and local municipalities for their distribution. While these funds are generally available to any municipality or group within the US proper, this means a greater level of competition. These funds coming from the federal government also stipulate that recipients must comply with federal building requirements rather than the more relaxed state regulations, typically increasing project costs.

Examples of federal funds include:

- Surface Transportation Block Grant (STBG)
- Transportation Alternatives (TA) (formally TAP, technically under STBG)
- Congestion Mitigation and Air Quality (CMAQ) Improvement Program
- Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant program
- Highway Safety Improvement Program (HSIP)
- Land and Water Conservation Fund (LWCF)

FEDERAL FUNDING PROS AND CONS



PROS

- Any municipality can apply
- Larger funding amounts
- Clear application process



CONS

- More stringent cost requirements to meet
- Requires much longer timeline
- Sometimes limited by project intent
- Larger pool of competition

DEPARTMENT OF HEALTH

One of the US government's principal agencies, the US Department of Health and Human Services, is the organization tasked with protecting the health of Americans at all stages of life. That includes both providing services directly to individuals and fostering an environment that promotes healthy living. The US Department of health is given and administers more grant dollars than all other Federal agencies combined to accomplish that.

While often less direct, the US Department of Health and Human Services also promotes walking and biking in communities by offering incentive and wellness program funding. That is with the intent of encouraging healthy lifestyles in the daily life of Americans and attempting to reduce health complications likely to occur later on in life. Many health issues, exacerbated by a sedentary lifestyle, can be managed or outright prevented with healthy behaviors such as walking and biking.

DEPARTMENT OF TRANSPORTATION

The US Department of Transportation is a federal cabinet established in 1966 by the Department of Transportation Act. Their primary responsibilities include overseeing federal transportation projects (such as the interstate system) and setting safety regulations for all major modes of transportation. To this end, the Department annually sets aside funding for surface transportation programs, including pedestrian and bike facilities. Their Mission:

*"To ensure America has the safest, most efficient and modern transportation system in the world, which boosts our economic productivity and global competitiveness and enhances the quality of life in communities both rural and urban."*⁹⁵

Of particular interest is the infrastructure bill passed on September 24, 2021, by the federal government in response to aging infrastructure and an attempt at economic stimulation in the wake of the Covid-19 pandemic. The bill targets the renewal of aging infrastructure in American communities and prioritizes initiatives that help reduce the nation's carbon footprint and explore alternative transportation.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

The Department of Housing and Urban Development (HUD) is a federal agency created to foster affordable homeownership, support the housing market, and prevent discrimination against vulnerable populations. Founded during the nation's War on Poverty by the *Housing and Urban Development Act* in 1965, the department had gradually evolved from home-buying assistance programs for returning WW2 veterans to an organization dedicated to protecting and providing housing to groups facing discrimination and vulnerable populations such as the elderly.

One of the organization's primary tools in carrying out this mission is the Community Development Block Grant program. This grant program provides annual funds for community development efforts that help to improve the living environment and make living more sustainable. An added goal of this program is to expand economic opportunities for residents, principally for those in low- to moderate-income areas.

BUREAU OF FISH AND WILDLIFE

A bureau under/within the US Department of the Interior (a group dedicated to protecting the nation's natural resources), the US Fish and Wildlife Service is responsible for implementing the nation's environmental laws, overseeing conservation programs, and distributing over 1 billion dollars each year to state and local agencies for conservation efforts. One of the bureau's most well-known programs is the Land and Water Conservation Fund (LWCF).

"The Land and Water Conservation Fund (LWCF) Federal program supports the protection of federal public lands and waters – including national parks, forests, wildlife refuges, and recreation areas – and voluntary conservation on private land. LWCF investments secure public access, improve recreational opportunities, and preserve ecosystem benefits for local communities."⁹⁶

⁹⁵ U.S. Department of Transportation. *Mission*. <https://www.transportation.gov/about>

⁹⁶ Department of Interior. *Land and Water Conservation Fund*. <https://www.doi.gov/lwcf>

STATE SOURCES

A potential source of funding a bit closer to home than the federal government is state funding. These, similar to federal funds, are allocated to and distributed by a state's various departments to further their specific goals. Some departments are directly funded by the Federal government and used more as a local chapter to make spending more efficient.

While not as extensive in their available resources as the Federal government, state agencies are typically much more responsive and aware of the individual situations of municipalities. This ease of communication can generally be attributed to an agency's much more limited scope regarding constituents they serve and the workload they bear.

Examples of state funds include:^{97 98}

- Safe Routes to Schools funds
- President Benjamin Harrison Conservation Trust
- Place-Based Investment Fund
- Destination Development Grant
- Regional Cities
- Stellar Communities
- Bicycle and Pedestrian Plan Funding Program
- Indiana Trails Program (ITP) (now with state instead of federal funds)

⁹⁷ in.gov/iddc/tourism/files/Current-Funding-Sources.pdf

⁹⁸ in.gov/iddc/tourism/files/Trail-DevelopmentFunding-report.pdf

STATE FUNDING PROS AND CONS



- More accessible communication than with Fed
- Less competition for funds
- Fewer requirements (less red tape = cheaper)
- Clear application process



- Less available funding than Fed
- Often matching requirements
- Sometimes requires regional impact from projects

DEPARTMENT OF TRANSPORTATION

Indiana's Department of Transportation, also known as INDOT, is the state department charged with maintaining, regulating, and expanding Indiana's transportation systems and related infrastructure. Similar to its national counterpart (USDOT), INDOT's most active role is regulation, ensuring that projects are built to regulation, surrounding environments are protected, and local municipalities receive proper direction.

Such systems include:

- Highways/Roads
- Bridges
- Railroads
- Local Interstate Routes
- Airports
- Canals



As a result of INDOT's efforts to create a Statewide Active Transportation Plan, an interactive *Trails Cost Calculator* excel worksheet was designed and made publicly available on the INDOT website. While not exact for all scenarios, this calculator gives an accurate estimate of where a trail's cost could fall given factors such as geography and design choices.

DEPARTMENT OF TOURISM

The *Indiana Destination Development Corporation* (IDDC), an evolved version of the previous *Indiana Office of Tourism Development* (IOTD), was officially formed by the state legislature in 2019. This group was tasked with promoting Indiana as an excellent place for living, visiting, learning, and earning. Just in 2019, Indiana welcomed over 81 million visitors who brought with them \$13.2 billion in spending.

DEPARTMENT OF NATURAL RESOURCES DIVISION OF FISH AND WILDLIFE

Established by the State of Indiana under the Department of Natural Resources (DNR), the Division of Fish and Wildlife is a group dedicated to preserving the state's natural environment for residents. These efforts include not only preservation efforts but the encouragement of resident participation in outdoor recreation activities.

The Land and Water Conservation Fund (LWCF) is a matching assistance program managed by the Division of Fish and Wildlife that provides grants for 50% of the cost for the acquisition and/or development of outdoor recreation sites and facilities. Since the program began, Indiana has received approximately \$90 million in federal funds, redistributed as state funds at the local level.

STATE FUNDING PROS AND CONS



- Complete local control of a project's timeline
- No additional outside requirements to meet
- Some flexibility in funding sources (and spending)



- Funding is not one lump sum
- Potential for public rejection
- Tools require long-term oversight

LOCAL SOURCES

While it may seem daunting, there are some traditional methods for communities to raise funds locally for improvement projects without significantly impacting their existing budget or local taxpayers. These tools range in their effectiveness and time commitment level, but all (or even a combination) can be used to kick off a project. In addition, these funds can be used as the groundwork to show a project's feasibility, and further outside funds can be secured later once proof of the project's potential is displayed.

Bonds

Available to both states and local municipalities, bonds are debt issued to help pay for large-scale capital projects. Also known as municipal bonds, they are long-term loans to local governments where the repayment date and schedule are specified ahead of time. These types of bonds are popular among investors. They are backed by the full trust and faith of a level of government (an entity that is unlikely to disappear or default), and interest earned on these bonds is exempt from most federal and state taxes. In some instances, a municipal body will set aside a specific revenue source to guarantee repayment (such as a new local tax or fee).

TIF District (Tax Increment Financing)

A Tax Increment Fund, or TIF, District is a tool of local public financing where a municipality (in this case, the City of Greensburg) can pay for a project by borrowing against the expected tax value increase.

For example, a TIF district may be created to fund a trail connection between a neighborhood, commercial core, and school. Funds will be borrowed to pay for the construction of the trail. Then as property values rise from the increased desirability, that difference between the new tax income and what it would have been without the project is used to pay back the principal borrowed.

Special Districts

Like a TIF district, special use districts are designated areas that local property owners voluntarily choose to join in return for the promise that improvements will be made to the zone. Where TIF districts tend to have a specific project they fund before being dissolved, Special Use Districts remain ongoing and serve a general purpose rather than a particular project.

For example, the City of Fort Wayne has a Downtown Improvement District where a small fee is collected from property owners to make improvements in the Downtown. These funds are then used for physical improvements, amenities, or grants to sponsor events and activities in the Downtown. All of this is done under the overall mission of making Downtown Fort Wayne a vibrant urban core.

District Examples:

- Business Improvement District
- Tourism District

Dedicated Improvement Tax (voter-approved)

A more traditional approach to raising local funds, but one that can be effective if given enough public support. A dedicated improvement tax is an additional tax approved by a general resident vote to fund a specific initiative/project. Funds collected can ONLY be used for this proposed purpose.

While most residents are generally opposed to additional fees, organizing community buy-in can be a driving force for further development and helps build a sense of community identity.

Examples of funding sources:

- Business Improvement District funds
- General Obligation Bonds
- Local Capital Improvement Programs
- Regional Bike Program fund
- Tax Increment Financing (TIF)
- Transportation Fund for Clean Air
- Unspecified city funds
- Voter-approved sales taxes or other levies
- Local Option Income Tax (LOIT)

Examples of voter-approved fees:

- Sales Tax (can be for a specific sector)
- Income Tax
- Vehicle Registration Fee
- County “Wheel” Tax
- Local/County Recreation Impact Fees (RIF)
- Property Tax

LOCAL FUNDING PROS AND CONS



- No obligations to payback
- PR victory for the community
- Gradual implementation
- No competition



- Inconsistent funding source
- Potential withdraw with no recourse
- Typically limited in funding amount

PRIVATE SOURCES

The most varied of potential sources, the private sector offers organic flexibility not found in the other sources but also comes with the least amount of control. As they are located within the community, rapid and precise communication is not an issue, and cooperation in completing projects is highly fluid.

Relying on development requirements can take implementation costs off the shoulders of the local community but indefinitely extends the final project timeline and may never actually see completion. This method also lacks the critical mass of energy a single development push can bring at completion.

Relying on private groups and individuals can bring an unexpected boon to community development but also risk unexpected pullout. With no government oversight or requirements, the only thing keeping private groups committed to a project is their own interests.

PRIVATE FUNDING PROS AND CONS



- No public funds outlay
- Cost of new facilities passed on to property owners



- Slow, possibly piecemeal implementation
- Requires consistent application over time
- Can contribute to minor increases in property development costs



DEVELOPMENT REQUIREMENTS

Generally, the most sought-after method for implementing improvements, development requirements can be placed on private developments that require specific improvements to be made before approval is given.

Relying on development requirements can take implementation costs off the shoulders of Greensburg but indefinitely extends the final project timeline and may never actually see completion. This method also lacks the critical mass of energy a single development push can bring at completion.

INCENTIVIZE AND COOPERATION

Incentivizing and cooperating with developers can be a double-edged sword for communities with no personnel experienced in the development process. A certain degree of familiarity is needed to give a municipality an equal footing in negotiating benefits and requirements with private developers. But when successful, local governments gain both a PR victory with residents and trusted partners for future developments.

UNIVERSITIES AND HEALTHCARE

While not all communities are fortunate enough to have these assets, universities and larger healthcare complexes can be extremely valuable partners in project development. Both groups tend to have the extra resources and interest in seeing improvements made in their local community. That serves both their long-term goals to improve the health and wellness of their constituents but also provides a sanctioned opportunity to show their dedication to residents.

PHILANTHROPY GROUPS

Within every community are people and groups who would give their time and efforts for its betterment. Properly leveraging these resources in a more official capacity can lead to a much better long-term benefit.

Foundations are, in general terms, nonprofit organizations or trusts who distribute funds for a charitable purpose. They collect and invest funds to maintain principal savings, or receive donations, and then invest the interest earned in specific philanthropic ventures.⁹⁹

The two types of foundations that most of these groups fall into are private foundations and grantmaking public charities. Private foundations are tied to a specific individual, family, or business and must give away a particular percentage of their asset value every year. Public foundations received their funds from multiple sources (both private and public).

⁹⁹ <https://learning.candid.org/resources/knowledge-base/what-is-a-foundation/>

EXAMPLES OF FUNDING SOURCES:

Community Foundations

Private Foundations

- Lilly Endowment
- Ball Foundations

Non-Profit Trail Grants

- Rail-to-Trails Doppelt Family Trail Development Grant
- People for Bikes Community Grants
- Greenways Foundation
- Local Bicycle Groups

Corporate Grants, Sponsorships, Partnerships

- Walmart
- REI Co-op Philanthropy

Utility Company Funding or Partnerships

- Citizens Energy
- Duke Energy
- Northern Indiana Public Service Company (NIPSCO)
- Vectren Energy

Private Individual Donors

- Engineering
- Contracting
- Route/Alignment study
- Regulatory changes
- Subdivision requirements

5- TO 20-YEAR EVOLUTION OF THIS PLAN

SPEED ENFORCEMENT INFRASTRUCTURE

Speed is a key risk factor and often the main result of traffic injuries, impacting the increased probability of a crash and the severity of injuries. The higher a speed limit is, the shorter amount of time the driver has to react to stop and avoid the conflict. Some of the factors that affect a driver's choice to speed include driver factors such as age, gender, alcohol and drug consumption, number of passengers, road layout such as surface quality, maximum speed, and traffic conditions such as traffic density, travel speed, and weather conditions.¹⁰⁰

When speed limits are first decided, motorist behavior is often the only consideration. Because of this, many speed limits do not match the road's character they are meant to enforce. Roads with high speeds are often wider, with more than one lane of travel in each direction. However, streets with low-speed limits are the same width as their higher-speed counterparts in many American cities. For many drivers, a sign with a lower speed limit is not enough to make them slow down.¹⁰¹

Drivers are more likely to slow down when they are more aware of their surroundings. That can be achieved by narrowing roadways and planting trees closer to the edge of the street or adding flashing speed measurement signs. Instead of only taking motorists into account when designing speeds limits, the context and character of the street should be an implemental part of its design. For example, instead of changing the speed limit when motorists speed, change the design of the street to match the desired speed limit. If a residential speed limit such as 25 to 35 mph is applied, then the street should reflect a residential character, which can be described as narrower, quieter roads, and street life, such as pedestrians and cyclists.¹⁰²

Traffic calming is a term used to describe the placement of physical infrastructure and other measures on existing roadways to reduce vehicle speeds and provide increased safety for bicyclists and pedestrians. Traffic calming involves implementing speed enforcement infrastructure such as speed bumps, raised intersections, curb extensions, median barriers, and narrowing the roadway. These measures not only reduce vehicular speeds along corridors but can also limit cut-through traffic.¹⁰³





Traffic calming measures have been proven to be widely effective at reducing the crash frequency in many developed countries. Traffic calming measures are particularly effective and useful in areas where enforcing the speed limit is still ineffective.¹⁰⁴ There are many tools to implicate traffic calming measures. These tools can also be implemented at several locations such as intersections, streets, neighborhoods, or city-wide.¹⁰⁵

One coming approach to traffic calming is to implement a “road diet.” A road diet involves reducing the width or number of vehicular travel lanes. This space is then reallocated for bicycle lanes, pedestrian crossings, turning lanes, or parking. Road diets promote traffic calming by decreasing the length of vehicular travel lanes for pedestrians to cross, providing ample space for safe crossings, decreasing speeds, reducing the severity of crashes, and providing opportunities for on-street parking.¹⁰⁶

SYSTEM UPGRADES

The plan’s long-term (20-year) vision is generally intended for completion within the next 20 years, by which time new challenges and opportunities for alternative transportation will have emerged. The intent of the vision is to provide a foundation for future initiatives, to address challenges that are either newly emerging or are taking on different importance.

It should be noted that some of the plan’s recommendations are placeholders for future upgrades. Bike lanes may need to give way to dedicated multi-use pathways, for example. Trails that are initially paved at a minimum width may be expanded if sufficient volume warrants it. Crossing treatments may have superior alternatives that would be required if pedestrian traffic increases. And, as already noted, emerging land-use patterns west of SR 3 may require a revisitation of the recommendations in that vicinity.

The Plan should guide the development of the alternative transportation system but not be overly restrictive. Universal design, bike-ped infrastructure that separates users from vehicular traffic, and infrastructure that prioritizes cyclist and pedestrian mobility ahead of motorists should be implemented where and when possible. Periodically revisiting and reassessing this plan throughout the next 20 years will be vital to its success. Stakeholders may find that the city can go beyond some of the recommendations in this plan and implement upgrades to the bike-ped infrastructure before it’s time to create the next plan.

¹⁰⁰ World Health Organization. “Road Safety Speed Facts.” World Health Organization, 2004. (accessed September 24, 2021).

¹⁰¹ Solomon, David Harris. “Accidents on main rural highways related to speed, driver, and vehicle.” U.S. Department of Commerce, 1964. (accessed September 24, 2021). <https://www.ohiomemory.org/digital/collection/p267401ccp2/id/55>.

¹⁰² Marohn, Charles. “Understanding the 85th Percentile Speed.” Strong Towns, July 27, 2020. (accessed September 24, 2021). <https://www.strongtowns.org/journal/2020/7/24/understanding-the-85th-percentile-speed>

¹⁰³ transportation.gov/mission/health/Traffic-Calming-to-Slow-Vehicle-Speeds.

¹⁰⁴ World Health Organization. “Road Safety Speed Facts.” World Health Organization, 2004. (accessed September 24, 2021).

¹⁰⁵ transportation.gov/mission/health/Traffic-Calming-to-Slow-Vehicle-Speeds

¹⁰⁶ transportation.gov/mission/health/Traffic-Calming-to-Slow-Vehicle-Speeds



APPENDICES

APPENDIX A: METHODOLOGY

The planning process used a public input-driven approach, applied in consultation with the study review committee (below), to arrive at a set of projects and policy recommendations. Following public meetings, stakeholder outreach, and a public survey, the goals and objectives for the system were derived. These goals and objectives formed the basis for performance measures used in the development of system alternatives, including the following:

- Number of miles located within areas with a high number of low-income households;
- Number of commercial properties;
- Number of residential properties; and
- Number of parks and public institutions (including the YMCA and the public library), paying special attention to City Park.

In all, eleven (11) alternatives were evaluated, including an existing network (do-nothing) alternative and the existing-plus-committed (capital improvement plan and program) alternative. Alternatives were developed iteratively; four (4) initial alternatives were developed and evaluated independently from the capital improvement plan and program (CIPP). Feedback from this round, combined with the CIPP options, led to three (3) refined alternatives, and eventually a final draft alternative, and finally (following review and input) the final system proposal.

Performance of the alternatives under each of the measures is outlined in the following tables:

Measure	Existing System (No-build)	Existing Plus Committed	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Length in miles — total (new in parentheses)	6.2	12.1 (5.9)	11.5 (6.4)	9.0 (2.5)	8.8 (4.7)	11.6 (5.2)
Length in miles in low-mod area	1.0	1.5	2.0	2.1	2.6	3.0
# of commercial properties accessed	96	156	335	118	233	304
# of residential properties accessed — single-family (multi-family in parentheses)	707 (14)	1985 (20)	2632 (29)	1344 (17)	1822 (18)	2318 (27)
# of parks/ institutions accessed, including YMCA and library	3	5	5	2	5	8
City Park access	No	Yes	No	No	No	Yes

Measure	Refined Alternative 1	Refined Alternative 2	Refined Alternative 3	Preliminary Draft Alternative	Final System Plan
Length in miles — total (new in parentheses)	14.6 (8.2)	16.0 (8.0)	14.4 (8.5)	21.2 (11.6)	23.7 (9.8)
Length in miles in low-mod area	2.8	4.3	2.7	2.9	2.6
# of commercial properties accessed	355	357	312	315	233
# of residential properties accessed — single-family (multi-family in parentheses)	3137 (29)	3138 (30)	1883 (25)	2893 (27)	1822 (18)
# of parks/ institutions accessed, including YMCA and library	7	6	3	8	5
City Park access	No	Yes	Yes	Yes	No

The Final System Plan is broken down into the following components:

	Miles			
	Total	Existing	CIPP	New
Bike Lane	1.2	-	-	1.2
Bike Lane & Sidewalk	3.3	-	-	3.3
Multi-use Path	10.9	2.5	5.5	2.9
Sidewalk	1.1	1.1	-	-
Trail	5.9	3.8	1.0	1.1
Unknown	1.4	-	-	1.4
Total	23.7	7.4	6.5	9.8

Costs for the system (excluding land acquisition and utility relocation) are estimated in the following table:

	Total	CIPP	New
Bike Lane	\$107,364	\$-	\$107,364
Bike Lane & Sidewalk	\$308,750	\$-	\$308,750
Multi-use Path	\$5,986,900	\$5,230,000	\$756,900
Sidewalk	\$-	\$-	\$-
Trail	\$2,257,100	\$1,970,000	\$287,100
Unknown	\$-	\$-	\$-
Total	\$8,660,114	\$7,200,000	\$1,460,114

ROUTE ALTERNATIVES CONSIDERED

Because this plan is specifically for bicycle and pedestrian transportation, it is essential to understand popular destinations and where people are currently making trips. The first step of the design process for this project was to identify destinations where potential users would want to travel.

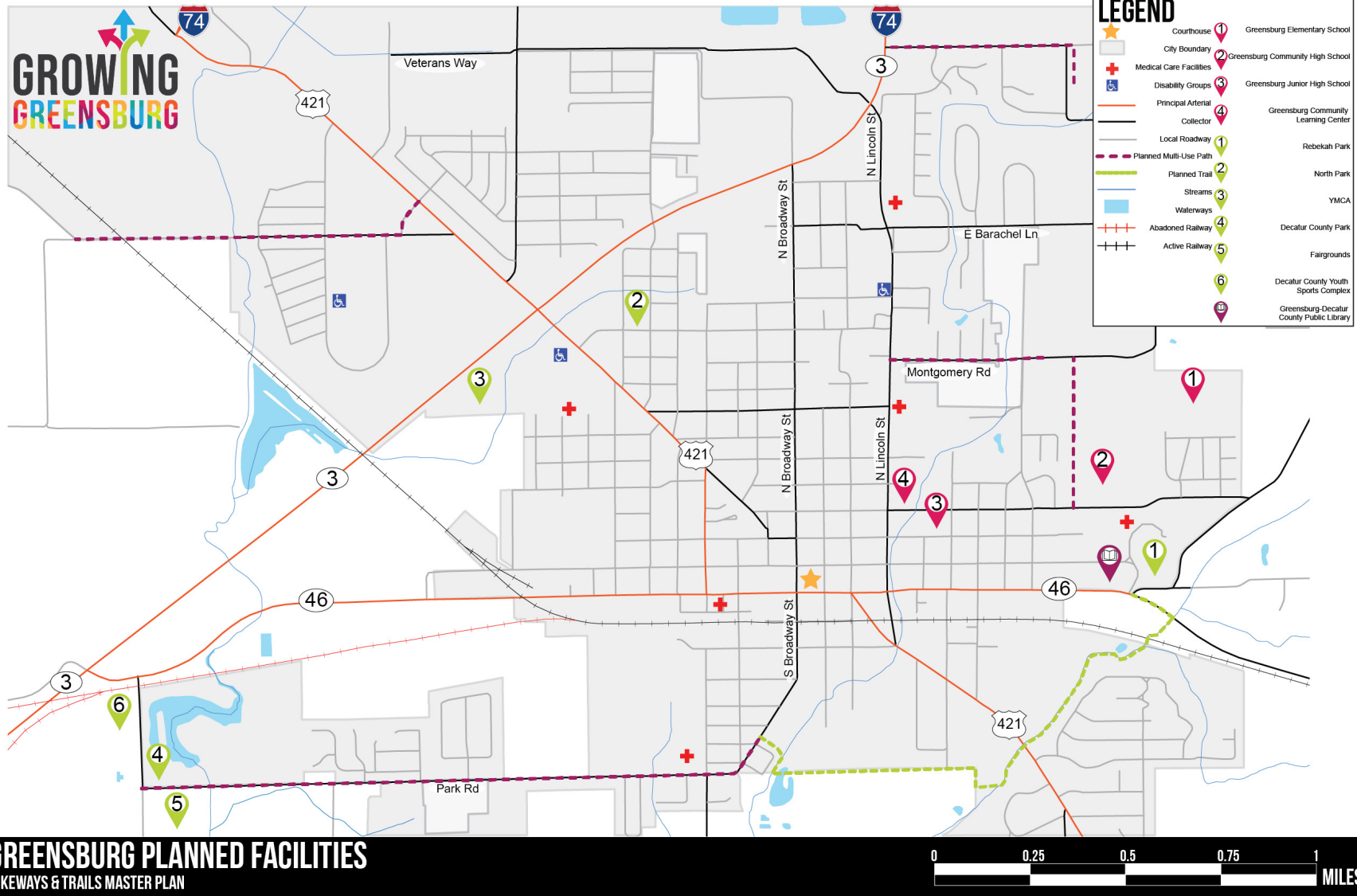
Throughout Greensburg, some points of interest include medical care facilities, disability groups, schools, the library, learning center, YMCA, Honda, and parks. Other destinations in Greensburg also include large commercial and employment areas since people travel there frequently to shop and work. Places of work are important because potential users visit those areas five days a week. A few of the principal places of employment in Greensburg include Honda to the northwest of the city, the retail areas along SR 3, and several sites located in an industrial park near the current greenway on the northeast side of the city.

With these destinations identified, several concepts or *vocabularies* were developed to highlight the specific routes that could be used to reach particular groups of destinations. These vocabularies consider which corridors throughout the city are vital to serve the designated destinations. The destinations defined in the vocabularies include core connections, periphery, work and shop, and quality of life. After determining specific corridors to serve groups of destinations, these vocabularies were combined to create several potential routes, each focusing on serving one or two of the identified destination groups. These refined routes are alternatives and show a proposed route network that serves a larger group of destinations. The alternatives include work-shop and quality of life, core and perimeter, and perimeter and quality of life. Lastly, the alternatives were evaluated, and the most important routes and corridors were identified, resulting in a final alternative. Only potential routes were considered and not classified as specific facilities at this stage in the design process. Many of these proposed routes also utilize the planning infrastructure identified in the city's Capital Improvement Plan.

Projects Identified from Capital Improvement Plan

A capital improvement plan (CIP) is a fiscal management tool used to “develop a prioritized list of needed infrastructure projects based on a 20-year horizon, and a revenue-constrained list for the first five years of the plan.” The CIP identified six roadway and five trail projects to be implemented over a 20 year period. These planned projects cost an estimated total of \$56,289,000. Several of these projects intend to expand the trail network within Greensburg. These projects include a multi-use path along Vandalia Road, a multi-use path along Freeland Road, a multi-use path along Montgomery Road, Big Blue Lake Multi-Use Path, and a trail to connect Decatur Park and Rebekah Park. Several of the planned roadway projects, such as Park Road Reconstruction and 10th Street Road Reconstruction, also offer an opportunity to plan to add a bicycle and pedestrian facility, which could be constructed simultaneously with the road reconstruction.⁷¹

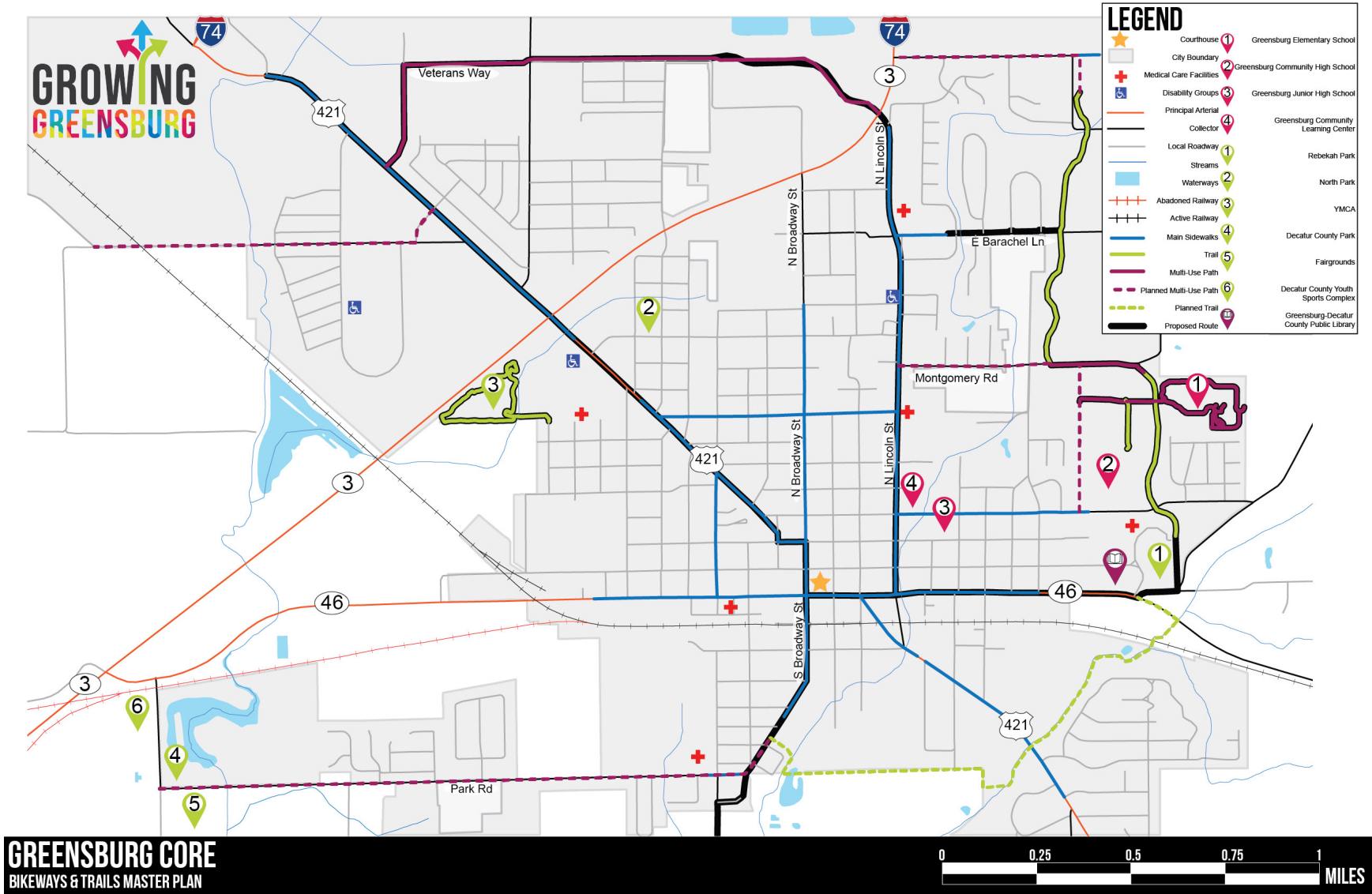
⁷¹ City of Greensburg. *Transportation Capital Improvement Plan and Program*. November 2020. (accessed September 22, 2021).



Map of trail projects identified in Greensburg's Capital Improvement Plan.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

Vocab 1: Core Connections

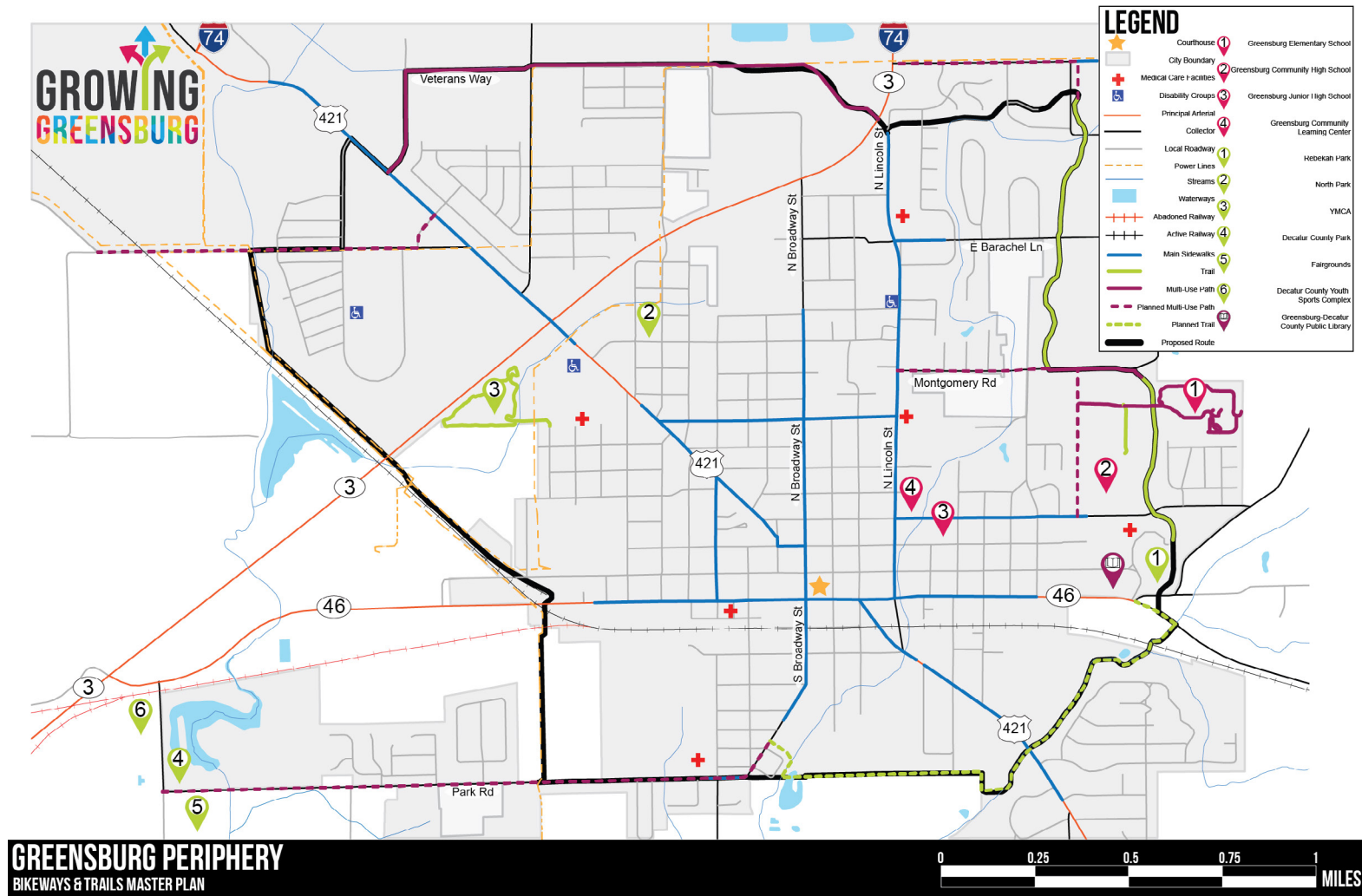
Vocabulary 1 emphasizes the connection to the core, or downtown, of Greensburg. This route relies heavily on US 421 and Lincoln Street to connect downtown and other existing facilities. Vocab 1 consists of 11.5 miles of trail overall, with 5.1 miles already existing or planned. Vocab 1 also provides limited access to City Park, which many survey respondents marked as a necessity.



Map showing proposed routes utilizing the core, or downtown, of Greensburg.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

Vocab 2: Periphery Connections

Vocabulary 2 focuses on the city's perimeter and maximizes the opportunity for dedicated facilities, meaning facilities that would not be shared use. This route creates a nine-mile loop around the city, utilizing 4.1 miles of existing trail and 2.5 miles of planned trails. This route would be ideal for recreational users, as they could use a dedicated looped facility to exercise. However, the goal of the plan is to aid bicycle and pedestrian transportation. From a transportation evaluation, this route does not provide access to many of the highlighted destinations. There are no direct connections from this route to downtown, and the distance to many commercial properties is greater than ¼ mile—which is the maximum distance that a user may be willing to travel off of a dedicated facility to reach their destination. The route also only provides access to Rebekah Park.

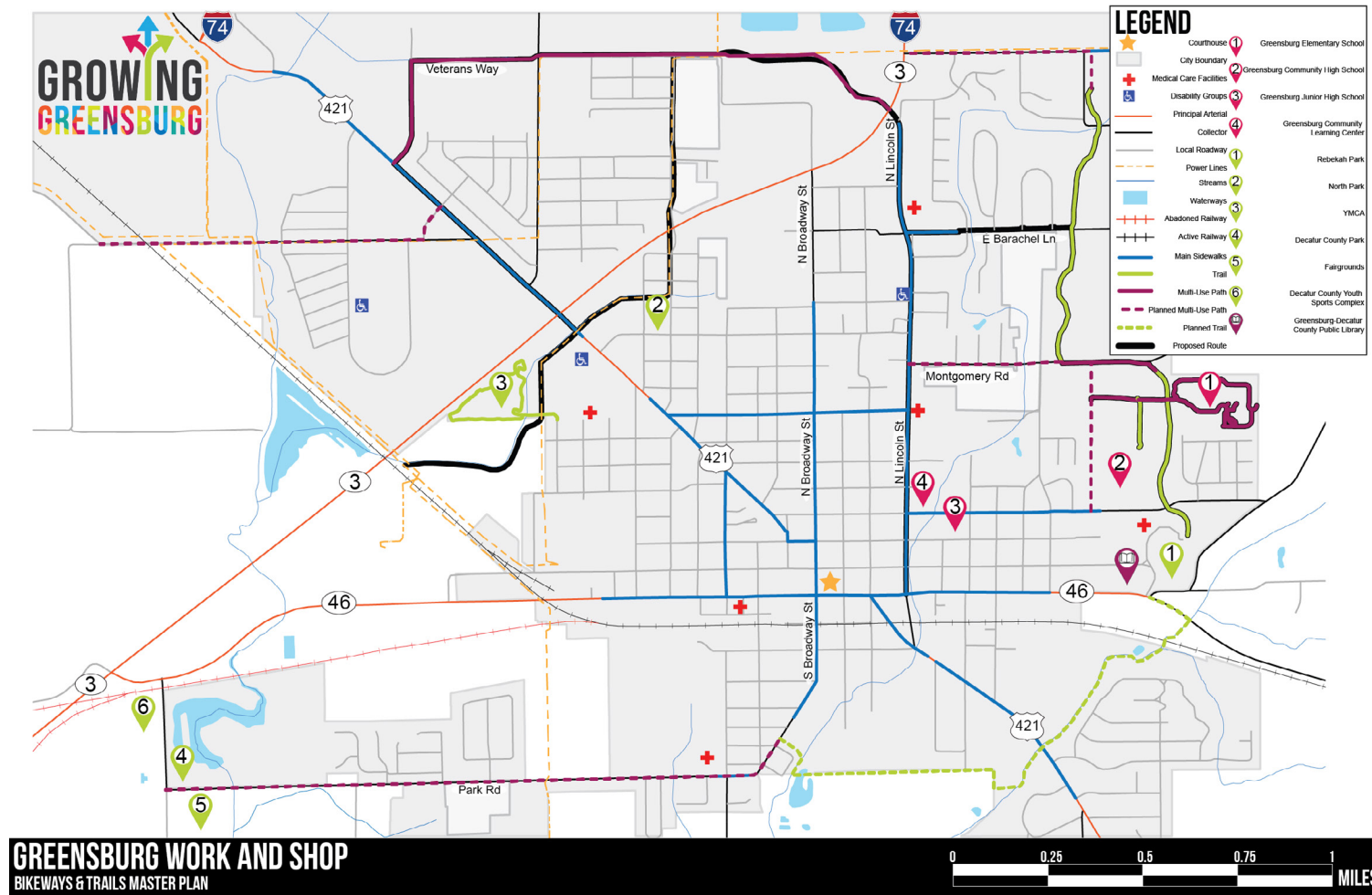


Map showing proposed routes that outline the perimeter of Greensburg.

SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

Vocab 3: Shopping and Work Connections

Vocabulary 3 focuses primarily on connecting potential users to commercial and employment areas, as these are often the destinations for many people who travel by car. Many of the commercial properties in Greensburg occupy the downtown and nearby SR 3. The proposed route encompasses 8.8 miles, with 4.1 miles utilizing existing facilities. While this route connects potential users to areas of large commercial districts such as near the intersection of Lincoln Street and SR 3 and access to the industrial park in the north portion of the city, **this route lacks many other connections. For example, this route does not serve the south portion of the city at all.** There is also no connection to areas of desired travel interest such as downtown and City Park. One of the challenges with this proposed route is that many of these destinations are located within high vehicular traffic areas on streets with many curb cuts. These factors can create unsafe environments for cyclists and pedestrians. Although this route connects users to commercial and employment areas, it is not ideal for travel to many other destinations. Also, it creates an increased safety risk due to the number of curb cuts along these streets.

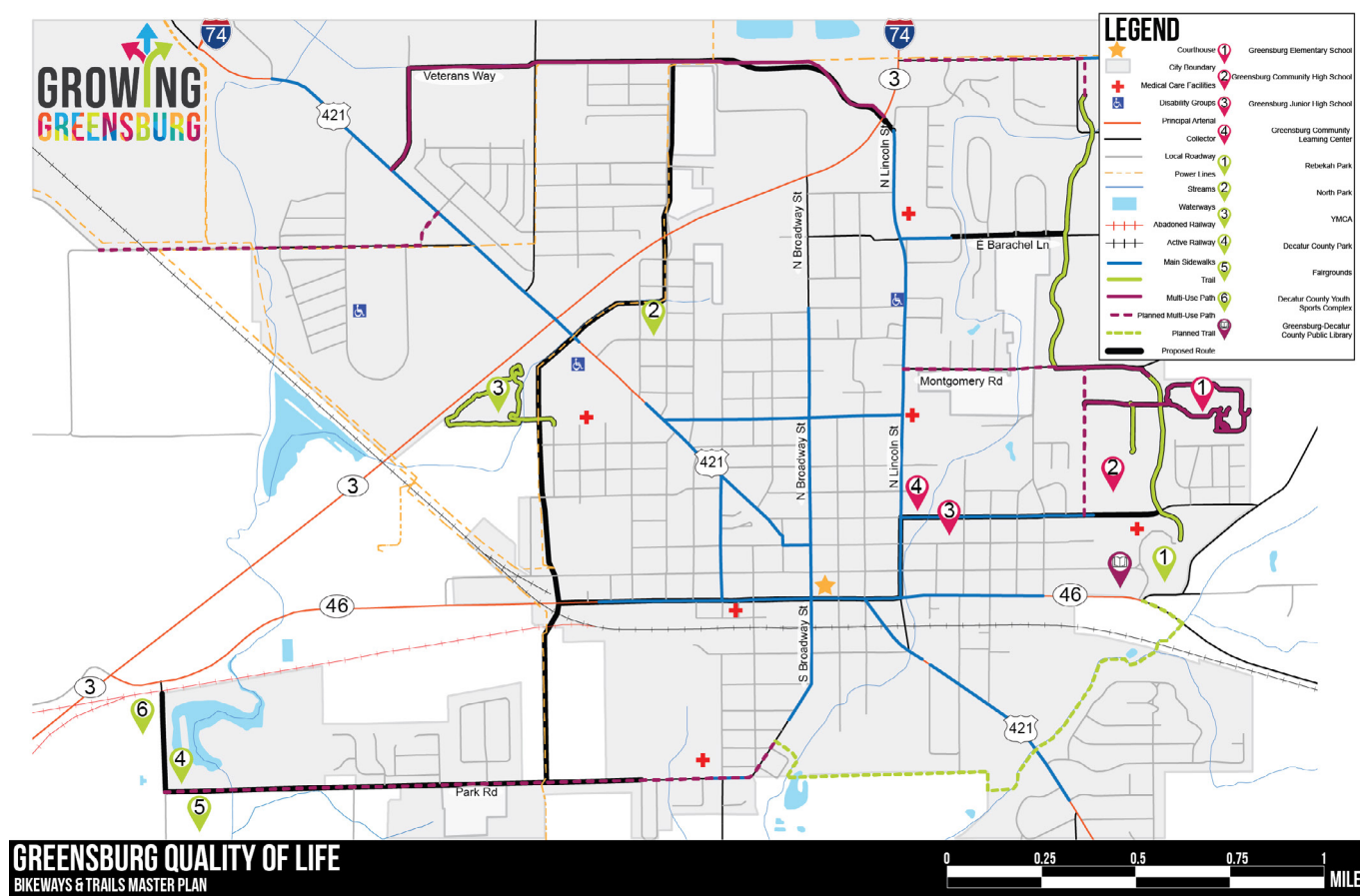


Map showing proposed routes that primarily serve areas of high commercial or employment activity.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

Vocab 4: Quality of Life

Quality of life is a combination of the positive and negative experiences that affect physical, mental, and emotional wellbeing. Aspects of quality of life include housing, employment, education, community, and access to facilities such as parks, shops, dining, entertainment, and more.⁷² Vocabulary 4 highlights the connections to facilities that improve quality of life. These facilities include connections between all parks and the YMCA and the library. This route is 11.6 miles, with 5.1 miles of existing facilities and 1.3 miles of planned facilities. This route also provides access to downtown. Out of all of the vocabulary routes, Vocab 4 scored the highest using the defined performance measures. Vocab 4 also provides the most miles of access to the low-income area that was identified. This route also connects users to eight parks and facilities, including City Park. A high number of commercial and residential properties are also within the ¼ mile buffer of this route. While Vocab 4 scored highest, there are still some potential issues with this route. For example, the south portion of the city has limited access to the trail. Several planned trails are not connected to the route.

⁷² cdc.gov/hrqol/concept.htm.

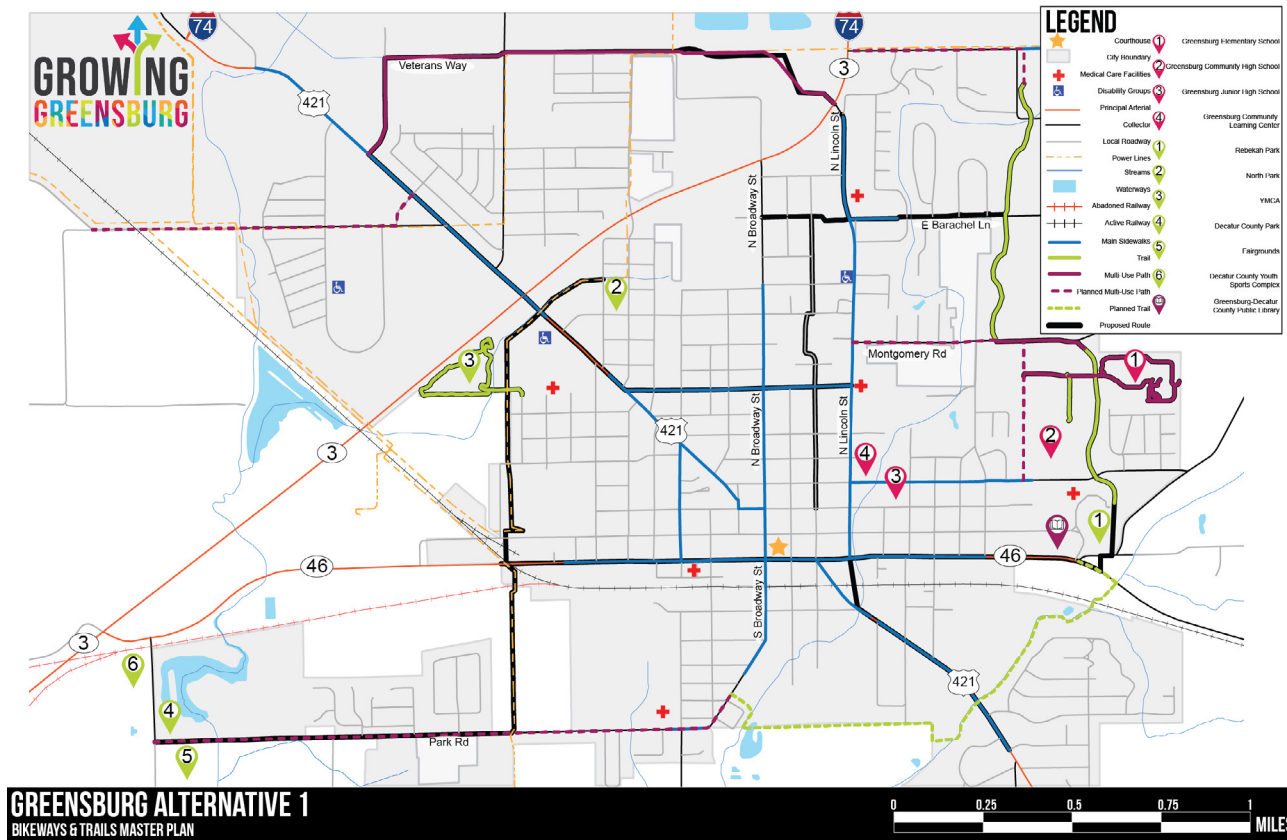


Map showing proposed routes that connect potential users to quality of life facilities such as parks, the library, and the YMCA.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

Alternative 1: Work, Shopping, and Quality of Life

The next step in the design process involved analyzing the explored corridors in the vocabulary sections and determining their feasibility and potential uses. Several alternatives were then developed which combined the most prevalent routes identified by the vocabularies. The goal of this process was to combine a group of routes that were to serve specific destinations to see how this combination would result in an overall system. In other words, the alternatives were used to determine the best set of routes to provide the most service to commercial and residential properties, employment areas, and all other pertinent destinations previously identified.

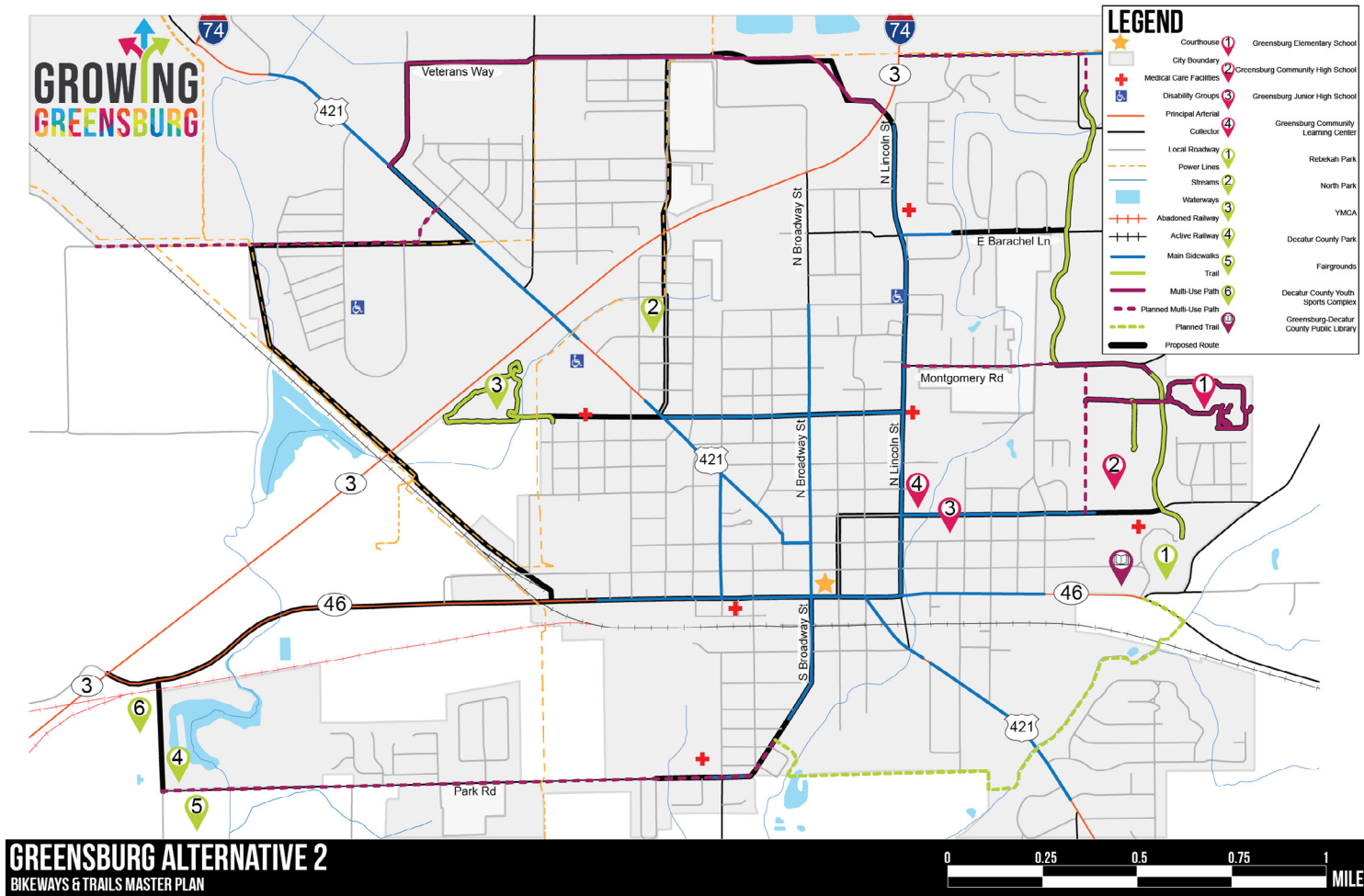
Alternative 1 combines vocabs 3 and 4 into a proposed system of bicycle and pedestrian facilities. That resulted in a proposed system of 14.6 miles, 5.1 miles of existing and 1.1 miles of planned facilities. Alternative 1 is a notable proposed system for several reasons. Out of the four alternatives, Alternative 1 scored the highest in several of the performance measures categories. These categories include the number of miles in low-income areas, the number of commercial properties within a ¼ buffer, and the number of residential properties within a ¼ buffer. As a transportation system, Alternative 1 offers many routes for potential users to reach their destination. Alternative 1 is unique because the proposed routes connect to create several subloops, suitable for transportation and ideal for those who may use the proposed routes to exercise. However, although Alternative 1 travels along Park Road, it does not extend north to connect to the Decatur County Youth Complex.



Map showing proposed routes highlighting connections to work, shopping, and quality of life destinations.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

Alternative 2: Core and Perimeter

Alternative 2 combines vocabs 1 and 2 to implement corridors to the downtown and a loop around the city. This alternative works as a spoke and wheel. The perimeter, the wheel, forms a loop around the city. However, the perimeter on its own does not provide adequate transportation access to many of the designated destinations. Similarly, the core corridor to the downtown acts as a spoke with direct access to the core but little to no connection to other routes or destinations. Together, the core and perimeter routes offer a loop, subloops, and direct corridor access to reach destinations in downtown and surrounding streets. This alternative consists of 16 miles of proposed routes, with 5.1 miles existing and 2.9 miles planned. Alternative 2 also serves a high number of commercial and residential properties within the ¼ mile buffer and 4.3 miles serving low-income areas. However, this proposed route lacks adequate transportation options for potential users to the south of the city.



Map showing proposed routes that offer access to the core and perimeter of Greensburg.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

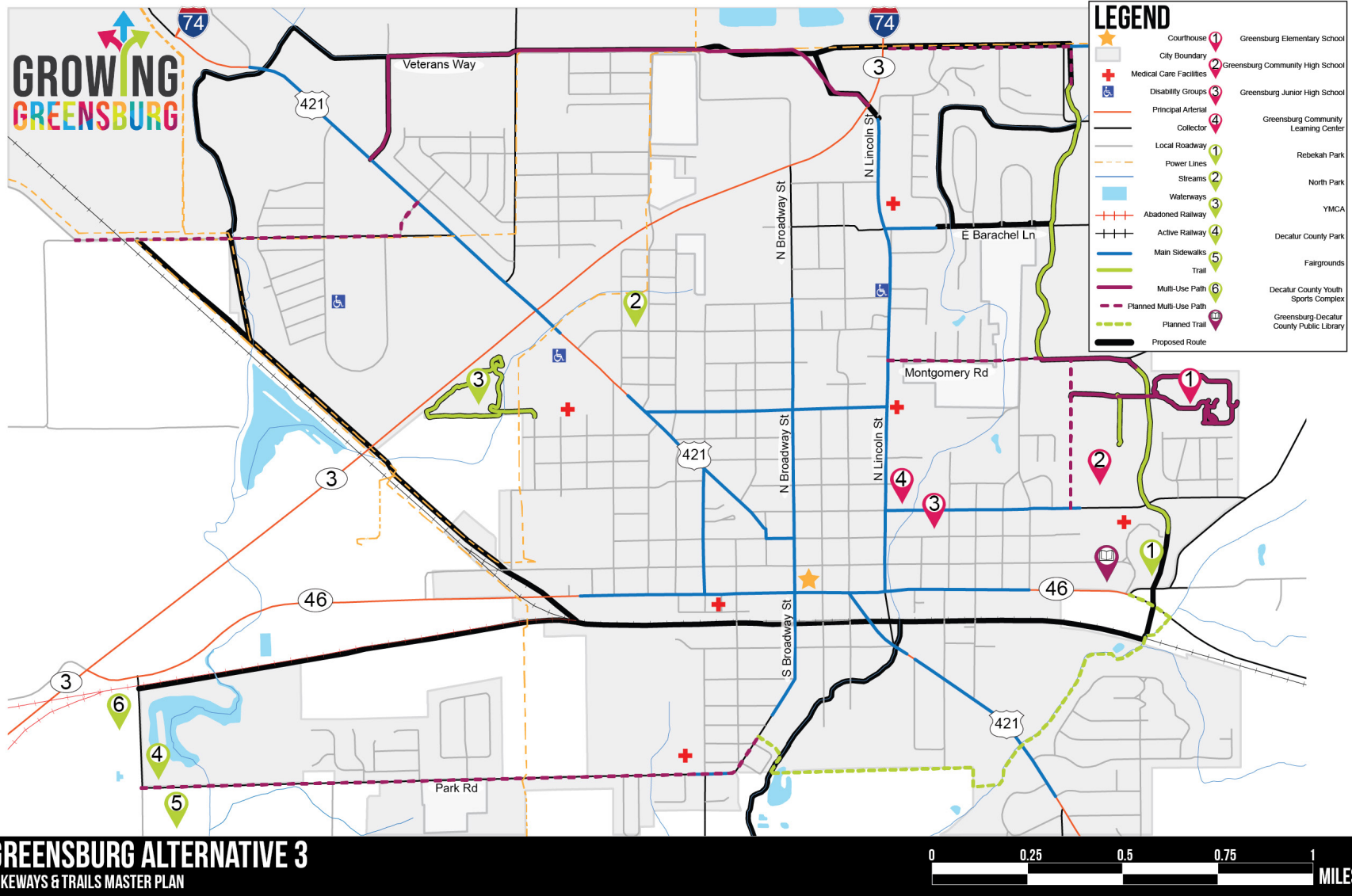
Alternative 3: Perimeter and Quality of Life

Alternative 3 explores the possibility of combining routes that provide perimeter access and connect quality of life destinations such as parks and the library. Alternative 3 proposes 14.4 miles of paths, with 5.1 miles existing and .75 miles planned. Alternative 3 does not provide good transportation options to many desired destinations, similar to other analyses surrounding the perimeter route. Although the perimeter route may be attractive for recreational users, it does not offer enough routes to provide adequate transportation throughout Greensburg. Without the proposed routes **along many the core of the city, not only** are many destinations unreachable, but this would also require potential users to travel a longer distance to reach their destination. For example, a likely user traveling from the city's center would have to travel a considerable distance without a dedicated facility even to reach the proposed system. Alternative 3 scored the lowest on performance measures out of all of the alternatives, likely due to the absence of a facility to serve the city's core.

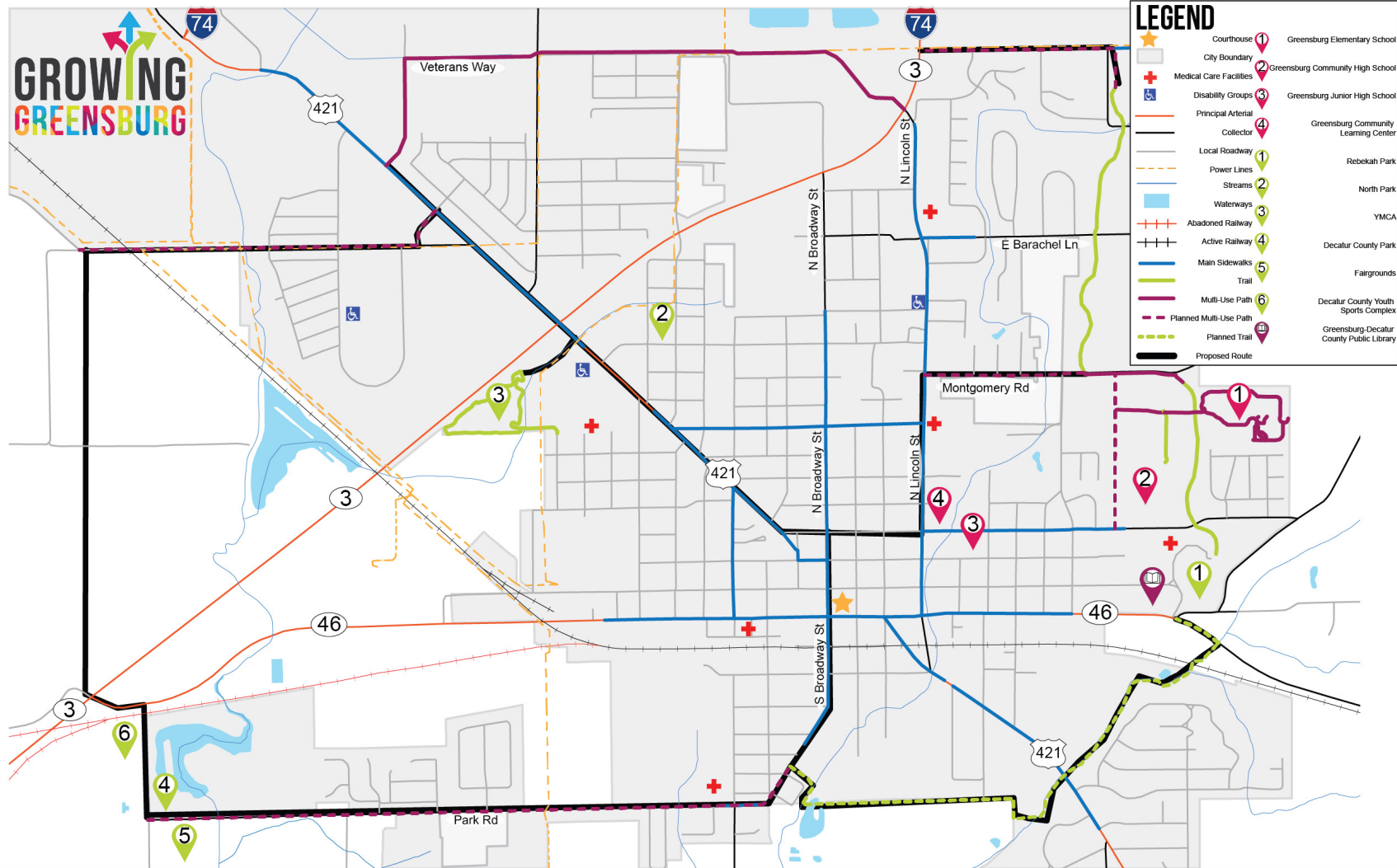
Refined Alternative

Utilizing the best sections from each alternative, the next level of the design phase consisted of another evaluation of routes. That was completed by comparing performance measures for each alternative and determining whether or not it would be feasible to implement them in the proposed location. The result of this analysis was the Refined Alternative, which is still not the final proposed route. Still, it was a vital step in determining the final proposed route, which will be discussed more in a later section. The refined solution proposes 21.2 miles of routes, with 5.1 miles of existing routes and 6.5 miles of planned routes. The Refined Alternative also has 2.9 miles of routes that serve the low-income area of the city. This alternative also serves many commercial and residential properties and connects all parks and desired destinations.

The Refined Alternative incorporated many of the proposed routes from Alternative 2, as spoke and wheel connections were vital to access many of the desired destinations. However, the Refined Alternative posed several challenges with the proposed routes. These challenges were called out as “problem areas” and required extra considerations about safety and potential implementation. Identifying these problem areas and discussing their possible solutions and implementations was key to developing the final proposed route. These problem areas and the methodology used to determine the final proposed route and crossing recommendations will be discussed later. To reach the next step of the design process, it was vital to research and decide which types of bicycle and pedestrian infrastructure could be feasibility implemented along the proposed sections in Greensburg. Deciding on the correct infrastructure is not only vital to the overall design of the system but is also key to the future implementation, users, and safety of the proposed route.



Map showing proposed routes along the perimeter of the city and access to quality of life destinations such as parks and the library.
SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.



GREENSBURG REFINED ALTERNATIVE

BIKEWAYS & TRAILS MASTER PLAN



A map combining the best portions from all of the alternatives.
 SOURCE: Decatur County GIS, Homeland Infrastructure Foundation Level Database, IndianaMAP.

APPENDIX B: STUDY REVIEW COMMITTEE

Development of the plan and oversight of the planning process included participants representing various bicycle/pedestrian, City, and State interests. These individuals, and the groups they represented, are outlined below.

Member Name	Position/Affiliation
Sarah Hamer	Building Commissioner/Plan Director
Ron May	City Engineer
Kevin Fleetwood	City Council, President of Planning Commission
Bryan Robbins	Economic Development Commission, Executive Director
Philip Deiwert	Decatur County Visitors Commission Director
Ken Dornich	Redevelopment Commission Member
Janine Walter	Decatur County Memorial Hospital, Wellness Coordinator
Rob Van Til	Decatur County Family YMCA, Associate Executive Director
Bob Barker	Greensburg Superintendent of Parks and Recreation
Teresa Kovacich	Greensburg Superintendent of Parks and Recreation (acting)
Tom Hunter	Greensburg Schools Superintendent
Jenni Hanna	Decatur County Community Foundation, Marketing Manager
Pete Fritz	Indiana State Department of Health, Healthy Communities Planner
Brandon Burgoa	Indiana Department of Transportation, Statewide Bicycle Pedestrian Coordinator

APPENDIX C: PUBLIC OUTREACH

As noted above, under “methodology,” the planning process relied heavily upon input from the public and stakeholders. The dates of general public outreach and the names and organizations of interviewed stakeholders are shown below.

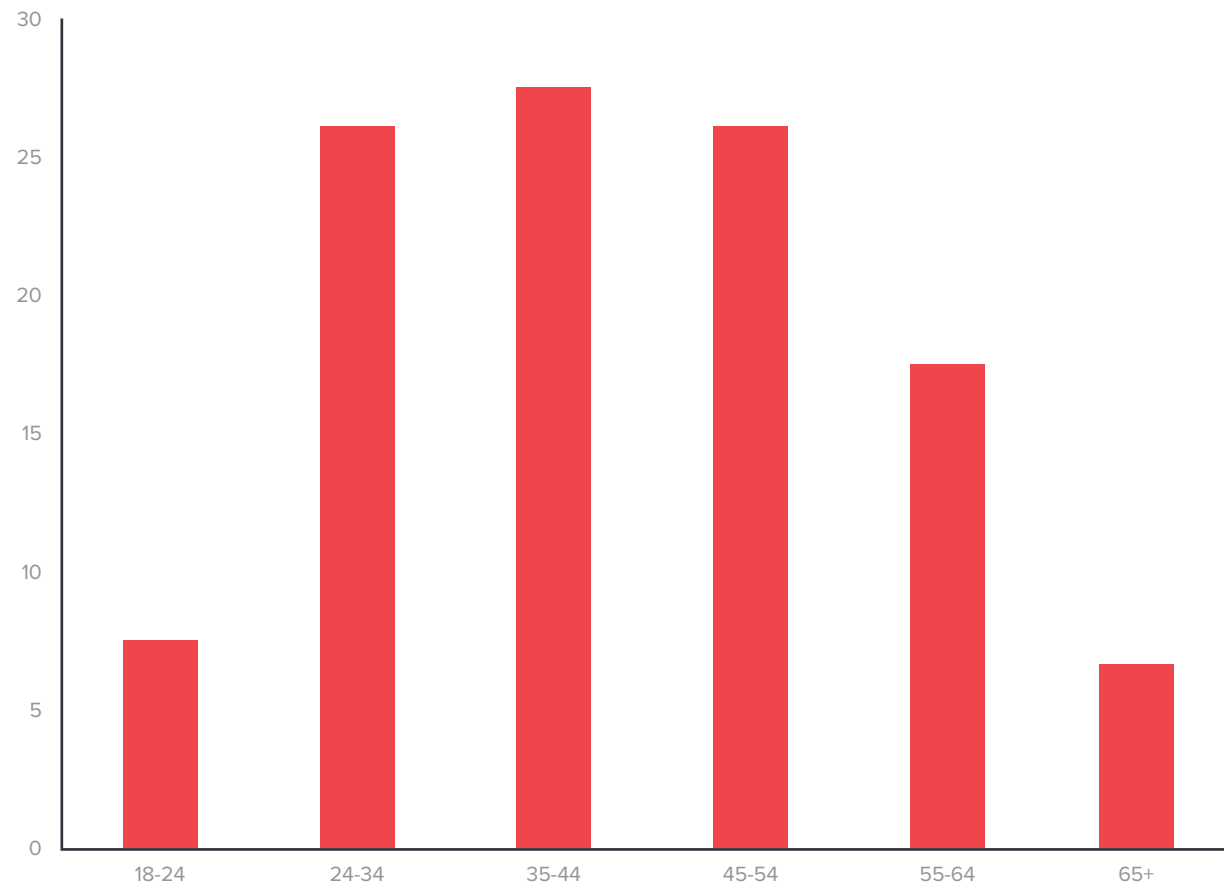
Event	Date
Public Workshop	August 16, 2021
Greensburg Farmers Market	August 27, 2021
St. Mary’s Festival	August 29, 2021
Tree City Fall Festival	September 17-18, 2021
City Hall Grand Opening	September 25, 2021

STAKEHOLDERS

Name	Group Represented
Tom Hunter	Greensburg Schools, Superintendent
Glen Hebby	Former City Council Member
Douglas Orr	RE/MAX Tower Realtor
Alex Sefton	Decatur County Community Foundation, PR Manager
Philip Deiwert	Decatur County Visitors Commission, Executive Director
Jenni Hanna	Decatur County Community Foundation, Marketing Manager
Melanie Nobbe	Decatur County Council
Tami Wenning	Decatur County Community Foundation, Executive Director
Vanessa Martin	Greensburg Library, Director
Lori	Greensburg Library, Staff

An electronic survey served as another foundational element of public outreach. The survey was open from August 16, 2021, to September 6, 2021, and garnered 112 responses. The ages of respondents are shown below.

NUMBER OF RESPONDENTS





APPENDIX D: CREDITS

This project was funded in part by a grant administered by the Indiana State Department of Health, Division of Nutrition and Physical Activity; Pete Fritz, FAICP, oversaw the grant. The U.S. Department of Transportation funded the grant, with Brandon Burgoa at the Indiana Department of Transportation serving as the coordinator.

The Greensburg City Redevelopment Commission oversaw the consultant contract, splitting contract management duties between Ron May, City Engineer, and Sarah Howard, City Building Commissioner. Members of the study review committee overseeing the project are listed above. Other City representatives not listed elsewhere who contributed to the project include Mayor Josh Marsh, City Communications Director Kristen Williams, and City Street Commissioner Mark Klosterkemper.

The consultant was American Structurepoint, Incorporated, out of Indianapolis, Indiana. Philip Roth, Ph.D., AICP served as project manager, with Lisa Dunaway, AICP, LEED AP, Natalie Kroger, and Alex Varney serving as project planners. Matt O'Rourke, AICP, manages the group. Also contributing to the plan's technical content were Ted Bleicher, PLA, Anna Menchaca, and Luke Kessler, PLA. Karen Gillmore and Jordan Barker of the communications group assisted in document assembly, formatting, and publishing.

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