BLOOMINGTON TRANSPORTATION PLAN

CITY OF BLOOMINGTON

FINAL DRAFT REPORT

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Toole Design Group

Table of Contents

Executive Summary **3**

1. Introduction **6**

1.1 Vision and Planning Approach 6

1.2 Purpose 7

1.3 Planning Process 7

2. The State of Transportation in Bloomington **9**

2.1 City Transportation History 9

2.2 Bloomington Today 10

2.3 What has been done so far? Review of Past Studies 13

2.4 Major Transportation Issues 15

2.5 Existing Motor Vehicle Traffic 16

2.6 Pedestrian-Motor Vehicle and Bicycle-Motor Vehicle Crash Analysis 17

2.7 Existing Bicycle Network Analysis 20

3. Street Network and Classifications **22**

3.1 Transportation Planning Approach 22

3.2 Street Typologies 23

3.3 Bicycle Facility Types 31

3.4 Pedestrian Network Assessment 36

3.4 Key Treatments and Supporting Guidance 39

4. Recommended Projects **43**

4.1 New Roadway Connections 43

4.2 Multimodal Projects 48

5. Implementation Strategy **50**

5.1 Overall Approaches 50

5.2 Policy Recommendations 50

Executive Summary

The City of Bloomington's Bicentennial in 2018 celebrates the community's continued focus on its values of fairness, charity, kindness, ingenuity, innovation, education, and hard work. These values, along with the City's vision of passing along a healthy, humane, and thriving community for future generations, are the foundation of Bloomington's growing economy and population. With a history as a center for business, education, and culture in southern Indiana, Bloomington draws businesses, families, scholars, and visitors from around the world.

> *Change is coming...The Bicentennial reminds us of our obligation to the next generations—to pass along a city that will thrive, a community that will welcome and work for people from all walks of life, and from all corners of the globe, a place where justice is evident and where opportunity abounds. Bloomington needs to be a city of choice for the next generations of caring, creative people who will chart the course and steer the ship for the coming decades.*
> *– Mayor John Hamilton, 2018 State of the City Address*

Bloomington's growing economy and population present immense opportunities and challenges to the city's transportation network. Even though residents are walking, bicycling, and taking transit at high rates, the existing transportation infrastructure was primarily designed to serve automobile transportation. Meanwhile, growing public health concerns generate new questions about transportation's role in providing access to healthy food options, recreational activities, and walkable neighborhoods.

The Bloomington Transportation Plan (Plan) supports Bloomington's vision of a safe, efficient, accessible, and well-connected multimodal transportation system with enhanced transportation options and reduced dependence on the individual automobile; and, will guide the city as it continues to grow and face new transportation challenges.

The Bloomington B-Line Trail

This Plan fulfills the 2018 Comprehensive Plan requirement that calls for the development of an updated Master Thoroughfare Plan that includes elements of an active transportation plan. As an update to the 2002 Master Thoroughfare Plan, this Plan identifies new projects and programs as well as opportunities to coordinate their delivery for maximum benefit to community members. This Plan will be incorporated as part of the City's Comprehensive Plan, and it will guide the City's transportation investments, policies, and operations towards its 2040 vision.

This Plan recognizes the growing rates of walking, bicycling, and transit riding in Bloomington and the importance of planning for these active and healthy modes while continuing to maintain and improve the City's existing transportation infrastructure. The Plan achieves this shift by rethinking street classifications and providing updated multimodal facility recommendations. As Bloomington has limited right-of-way (ROW) for new or expanded transportation infrastructure, the City will consider the needs of all travelers in various types of environments as it retrofits existing facilities. This multimodal and

context-driven approach positions Bloomington to meet its current and future transportation needs and goals.

The project and program recommendations were developed through a community engagement process, a review of the City's and region's adopted plans, and technical analysis. The community engagement process included public charrettes, an online survey, an online mapping tool, and one-on-one meetings with stakeholders and public officials. These in-depth engagements provided key insights into what community members value most in their transportation network, what is missing, what works, and what can be improved.

Community Members Participating in the 1st Planning Charrette in January 2018

There are a total of 67 new street connection, 31 multimodal project and 5 policy recommendations in the Plan. Some of the key recommendations are:

Plan for Future Street Connections

This Plan recommends new street connections that are designed to preserve public ROW and establish a transportation network that will help meet the City's overall goals of connectivity and providing multimodal options. These include new street connections in the Sudbury Farm area, College Mall area, and many more.

Integrate Transportation and Land Use

The proposed street typologies and bicycle facility types consider the local land use context of both existing and desired development patterns. The Plan seeks to support local economic development and foster livable communities by aligning street design with surrounding land uses.

Redesign Kirkwood Avenue as Shared Street with Focus on Pedestrians

Kirkwood Avenue is the center of downtown Bloomington as well as one of the main entrances to the Indiana University (IU) campus. This Plan recommends redesigning it as a shared street, from Indiana Avenue to Walnut Street, prioritizing nonmotorized transportation, slowing speeds, and using a curbless design to support local businesses and festivals.

Restore Two-Way Circulation

College Avenue and Walnut Street, and 3rd Street and Atwater Avenue are two one-way couplets that are currently designed to carry high volumes of traffic at higher speed. To support the Comprehensive Plan goal of "nurturing a vibrant City Center," this Plan recommends restoring these streets to two-way circulation and reallocating existing ROW to safely accommodate all users.

Extend B-Line and Invest in High-Priority Multimodal Routes

The B-Line Trail is the backbone of Bloomington's active transportation network. It is widely popular for both transportation and recreation and it has spurred economic development along its corridor. In order to extend these benefits throughout the city, this Plan recommends prioritizing connected, high-comfort routes and extending the B-Line to the northwest. For example, 7th Street, which connects residential areas to the B-Line, downtown, and IU, is one route that would provide substantial community benefits if it had the same level of safety and comfort as the B-Line.

Expand the Neighborhood Greenway Network

Due to limited public ROW in established neighborhoods, neighborhood greenways, also known as bicycle boulevards, will be a practical way to establish an expansive multimodal network in the city. This Plan recommends several new and enhanced neighborhood greenways. These facilities use existing high-comfort routes, such as East Allen Street, as well as new routes through areas of town that currently lack significant bicycle infrastructure.

Adopt a Complete Streets Policy

This Plan provides several key elements of street design that are based on the Complete Streets philosophy, including specifying dimensions of various elements of street cross-sections based on street typologies. Along with that, the City should formally adopt a Complete Streets policy to provide support for the street typologies presented in this plan.

The Bloomington Transportation Plan responds to existing and future transportation needs and reflects the community's shared vision, values, and goals. The Plan is a roadmap for a more connected and multimodal Bloomington.

1. Introduction

The City of Bloomington's population growth since the 1990s has put pressure on its transportation system, making it increasingly difficult to provide mobility within existing and often constrained streets. Fortunately, the City's recently updated 2018 Comprehensive Plan provides Bloomington with a clear vision for a safe, efficient, accessible, and connected transportation system.

The Bloomington Transportation Plan (the Plan), takes into consideration the City's existing transportation studies, the existing state of the system, and policy analyses and builds upon the Comprehensive Plan's multimodal transportation vision and goals. This Plan will help the City realize the Comprehensive Plan's vision by defining the necessary steps to build a transportation system that works for all roadway users, regardless of age, income, mobility, or transportation mode. This Plan will also help the City improve and maintain its existing transportation system, implement new projects, and establish transportation priorities for the next 20 years.

1.1 Vision and Planning Approach

The City's focus on multimodal transportation planning is outlined in the City's Comprehensive Plan and is linked to the City's Vision and Guiding Principles. This Plan will help the City of Bloomington work towards its vision of achieving excellence through *collaboration, creativity, cultural vitality, inclusion and sustainability*.[1] The Plan supports the City's vision by implementing one of the 16 identified Vision Principles:

> **Provide a safe, efficient, accessible and connected system of transportation that emphasizes public transit, walking, and biking to enhance options to reduce our overall dependence on the automobile.**

In addition to this transportation-focused Vision Principle, this Plan also supports the following five guiding principles from the Comprehensive Plan:

- Nurture our vibrant and historic downtown as the flourishing center of the community
- Ensure all land development activity makes a positive and lasting community contribution
- Embrace all of our neighborhoods as active and vital community assets that need essential services, infrastructure, assistance, historic protection and access to small-scaled mixed-use centers
- Enhance the community's role as a regional economic hub
- Encourage healthy lifestyles by providing high quality public places, greenspaces, and parks and an array of recreational activities and events

In responding to the Comprehensive Plan's call for the development of a truly multimodal transportation system, this Plan takes a place-based approach to developing the transportation network. This approach is shaped by the City's recognition of the community-wide costs of unequal planning and programming among different modes of travel. It also highlights the congestion

[1] City of Bloomington. 2018 Comprehensive Plan.

management and long-term transportation planning benefits of a multimodal approach. Increases in inequality, emissions, transportation maintenance costs, obesity rates, physical inactivity levels, and roadway crashes are some of the costs of not taking a multimodal planning approach.

1.2 Purpose

The City's transportation plans must reflect its evolving vision and policies, land use profile, and future needs. Bloomington's transportation and land use policies must be aligned and updated on a regular basis because the public right-of-way (ROW) connects all land uses to people, goods, services, and utilities. Not considering transportation and land use policies in tandem, or not updating these policies on a regular basis, can lead to imbalanced growth, service delivery disruption, and expanding and inequitable public-sector costs. Through coordinated, context-sensitive planning, the City can leverage its growth and work towards its vision of achieving excellence through collaboration, creativity, cultural vitality, inclusion, and sustainability.

The City is required by Indiana Code 36-7-4-502 to develop and maintain a master thoroughfare plan, as part of a comprehensive plan, to provide guidance on the public ROW development. This Plan fulfills that requirement by providing general guidance to the City on the design, operations, and maintenance of the public ROW. Furthermore, in accordance with Indiana Code 36-7-4-506, this Plan provides guidance on, 1) the public ROW's preservation, 2) the implementation of the Comprehensive Plan's transportation-focused Vision Principle, and 3) the interdepartmental coordination within the City administration.

In addition to the state requirements, this Plan reflects the City's focus on multimodal transportation planning and context-based design approaches. This Plan combines elements that have traditionally been presented separately in a thoroughfare plan and an active transportation plan. This combined approach provides significant benefits to the City as it establishes a comprehensive planning approach for developing, prioritizing, and implementing the City's various transportation needs. This approach also assists the City in identifying opportunities to improve project coordination, to maximize benefits to residents, and to improve project delivery efficiencies.

1.3 Planning Process

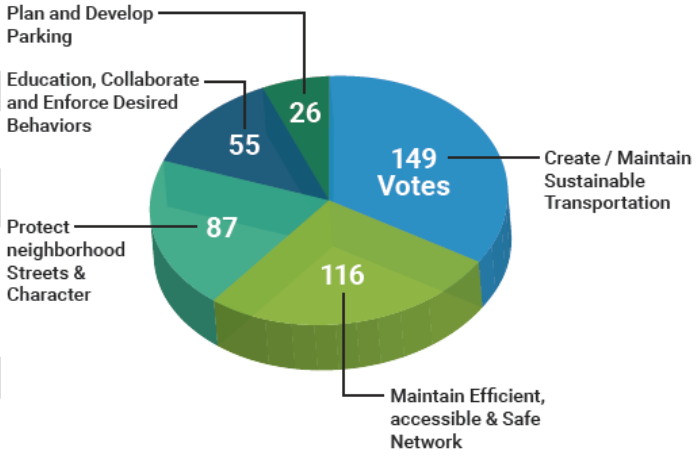
This Plan's development was guided by a review of past transportation studies and adopted plans, dialogue and input from two charrettes with community stakeholders, review of national best practice

design guidelines, analysis of crash data and traffic volume, and a geographic analysis of the existing network. Studies and plans reviewed include the 2018 Bloomington Comprehensive Plan, the 2012 Monroe County Comprehensive Plan, the 2010 Indiana University Bloomington Campus Master Plan, 2015 Indiana University Bicycle Master Plan, the 2011 Breaking Away: Journey to Platinum report, the 2008 Bicycle and Pedestrian Transportation and Greenways System Plan, and the 2002 Growth Policies Plan- Part 5: Master Thoroughfare Plan. The review's findings are discussed in Section 2.4 and responses from a stakeholder meeting are provided in Appendix A.

Planning Charrettes

The first of the two planning charrettes was 4-days long and included two public meetings and numerous one-on-one meetings with elected officials, chamber of commerce representatives, Monroe County planning and public works officials, Bloomington Transit representatives, Stone Belt representatives, and many more residents. Approximately 80 and 40 residents attended the first and the second public meetings, respectively. The planning charrettes included presentations, small group discussions, and dot matrix voting to encourage participants to engage with the Plan's development. The charrette participants shared their perspectives on what they like and dislike most about the city's transportation network, what values should be included Bloomington's street design, and what the transportation network is missing.

Additionally, the participants voted on what transportation planning goals they agreed with most. From the five options that were presented, "Create/Maintain Sustainable Transportation" received the most votes during the charrette, and the option "Plan and Develop Parking" received the least number of votes. Figure below shows the results of the public input on goals and values.



Transportation Goals and Values feedback from the 1st Planning Charrette

The second planning charrette was 3-days long and was designed to obtain maximum input from community stakeholder on the Draft Plan. The comments received during the charrette were incorporated to finalize the Plan.

2. The State of Transportation in Bloomington

2.1 City Transportation History

Transportation has played an important role in Bloomington's history. As the city's economic engine grew, so did its needs and desire to connect to regional markets. Connections to the railroad in 1853-1854 significantly improved the transport of people and limestone, and led to the establishment of new communities along the lines and growth in the region.

While Bloomington and Monroe County enjoyed significant success immediately following World War II, the region went through an economic downturn between the late 1950s and the 1970s. During this period multiple long-time businesses, including limestone companies, closed and travel behavior shifted as the opening of College Mall in 1965 reflected changing tastes in retail shopping. Bloomington's transportation network continued to grow during the early 1990s as additional roads, railroads, city sewers, paved streets, and sidewalks emerged along the City's public right-of-way (ROW).

Today, Bloomington continues to experience economic growth as the high tech, business, education, non-profit, public, and artisan industries further mature and develop in the region.[2] For example, from 2014 to 2015 the employment grew at a rate of 3.46 percent in Bloomington, while the state of Indiana only saw 0.65 percent growth.[3] This trajectory began in the 1980s and has led to significant land use developments and population growth since the 1990s. However, it should be noted that the employment growth has not led to wage growth which has negative impact on housing and transportation affordability.

As Bloomington's population, economy, and land use has grown and developed over the past 20 years so too have individual transportation habits across the community. From 2010 to 2016, it is estimated that the percentage of Bloomingtonians who drove alone to work decreased 5.3 percent, from 66.3 percent to 62.8 percent. During this period the number of car-free employees in Bloomington increased 1.4 percent from 4.7 percent in 2010 to 6.1 percent in 2016.[4]

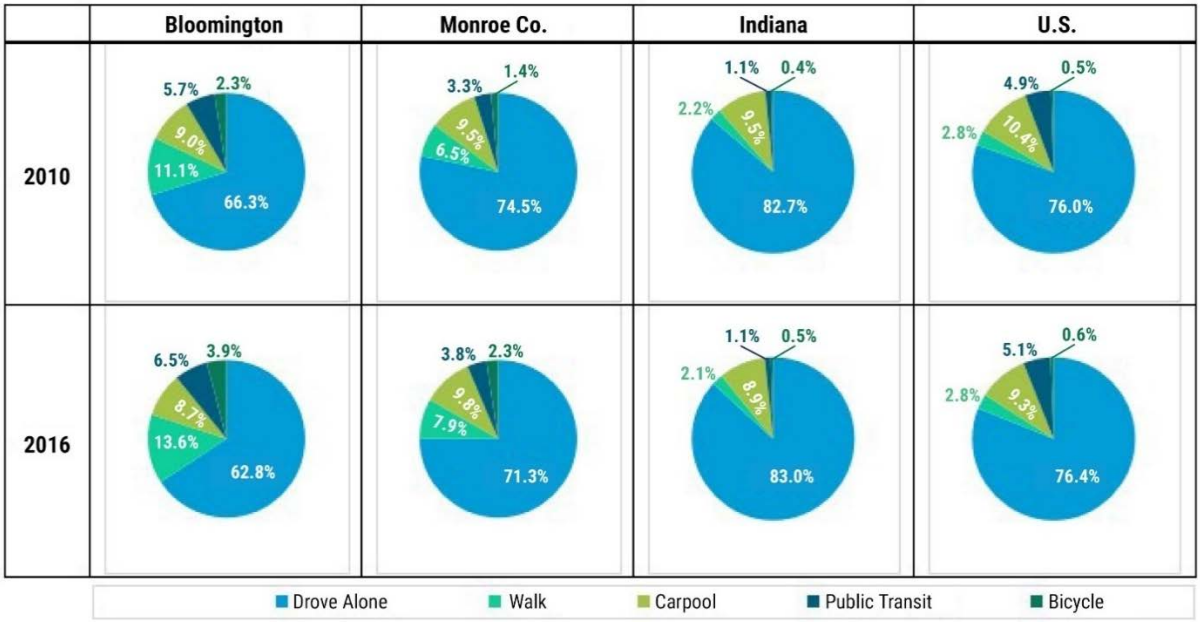
Table 1. *Bloomington Commuter Mode Shift 2010 - 2016*[5]

	Drove Alone	Walk	Carpool	Public Transit	Bike
2010	66.3%	11.1%	9.0%	5.7%	2.3%
2016	62.8%	13.6%	8.7%	6.5%	3.9%
Percent Change	-5.3 %	22.5%	-3.3%	14.0%	69.6%

From 2010 to 2016, walking, public transit, and bicycling commute mode shares significantly increased, with bicycling experiencing the greatest change of almost 70 percent. Walking, public transit, and bicycling mode shares also grew in Monroe County from 2010 to 2016, while staying relatively stagnant across Indiana and the U.S. However, it should be noted that in 2017, transit ridership in Bloomington has decreased from 2016. This may be attributed to the popularity of transportation network companies (TNCs) like Uber and Lyft.

[2] City of Bloomington. "History of Bloomington and Monroe County." Accessed 4/10/2018. https://bloomington.in.gov/about/history.
[3] U.S. Census Bureau. American Communities Survey 2015 1-Year Estimate.
[4] U.S. Census Bureau. American Communities Survey 2016 and 2010 5-Year Estimate.
[5] U.S. Census Bureau. American Communities Survey 2016 and 2010 5-Year Estimate.

Table 2. *Commuter Mode Shift Comparison*



2.2 Bloomington Today

At just over 23 square miles and with an estimated population of over 83,000, Bloomington's 2016 population density is significantly higher—nearly 10 times—than Monroe County's, as well as Fort Wayne's and Indianapolis's. Higher population density helps support multimodal transportation and accessibility. In comparison to Monroe County in 2016, Bloomington had a lower median household income ($31,254 compared to $43,389); and median age (23.7 years old compared to 28.6 years old). Additionally, Bloomington had a higher poverty rate than Monroe County at 38 percent, compared to 25 percent.[6] A further discussion on Bloomington's demographic profile is provided in Appendix B.

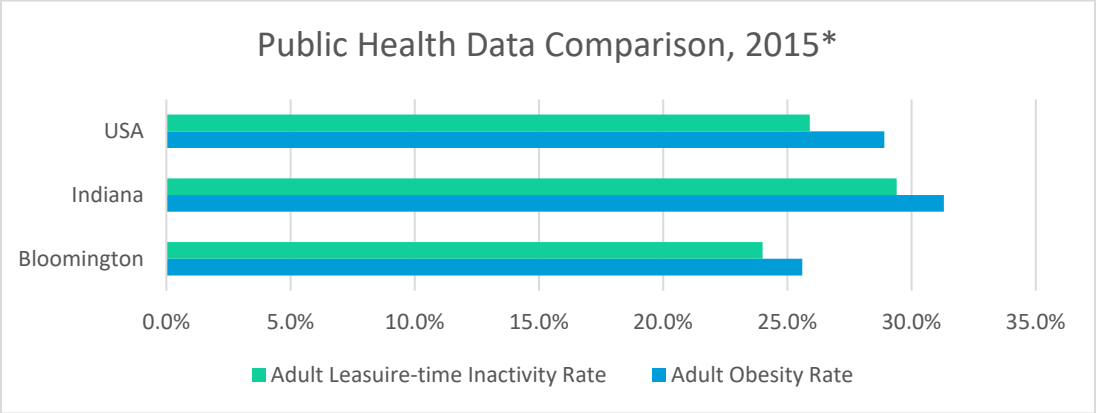
Public Health

In addition to Bloomington's general demographics and transportation profile, local public health data was analyzed during the Plan's development to understand current conditions. Especially, the average amount of leisure-time physical activity and obesity rates experienced by Bloomington residents were reviewed to gauge the impact of the transportation network's quality on community member's heath.

In comparison to national averages, Bloomington has a more active and less obese population. About 24 percent of adults in Bloomington are not physically active (defined as no leisure-time physical activity) and about 26 percent of adults are obese.[7] While these numbers fall far below the national average, there is still opportunity for improvement and for ensuring that all residents, regardless of socioeconomic status, have access to safe and reliable opportunities for physical activity.[8, 9]

[6] U.S. Census Bureau. American Communities Survey 2016 5-Year Estimate.
[7] 500 Cities Project. Center for Disease Control and Prevention.
[8] 500 Cities Project. Center for Disease Control and Prevention.
[9] The Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, "Nutrition, Physical Activity, and Obesity: Data, Trends and Map." https://www.cdc.gov/nccdphp/dnpao/data-trends-maps/index.html.

Figure 1. Adult Obesity and Inactivity Rate Comparison



* National level data is from 2016

The level of physical inactivity among adults varies across the City of Bloomington. In reviewing data at the census track level, adults that live north of 3rd Street, west of Rogers Street, and south of the SR 45/46 Bypass are less likely to participate in physical activities than adults in other parts of the city. This data aligns with the findings from the Bicycle Network Analysis (BNA) that was conducted as part of this Plan's development. The BNA and its findings are discussed in Section 2.7.

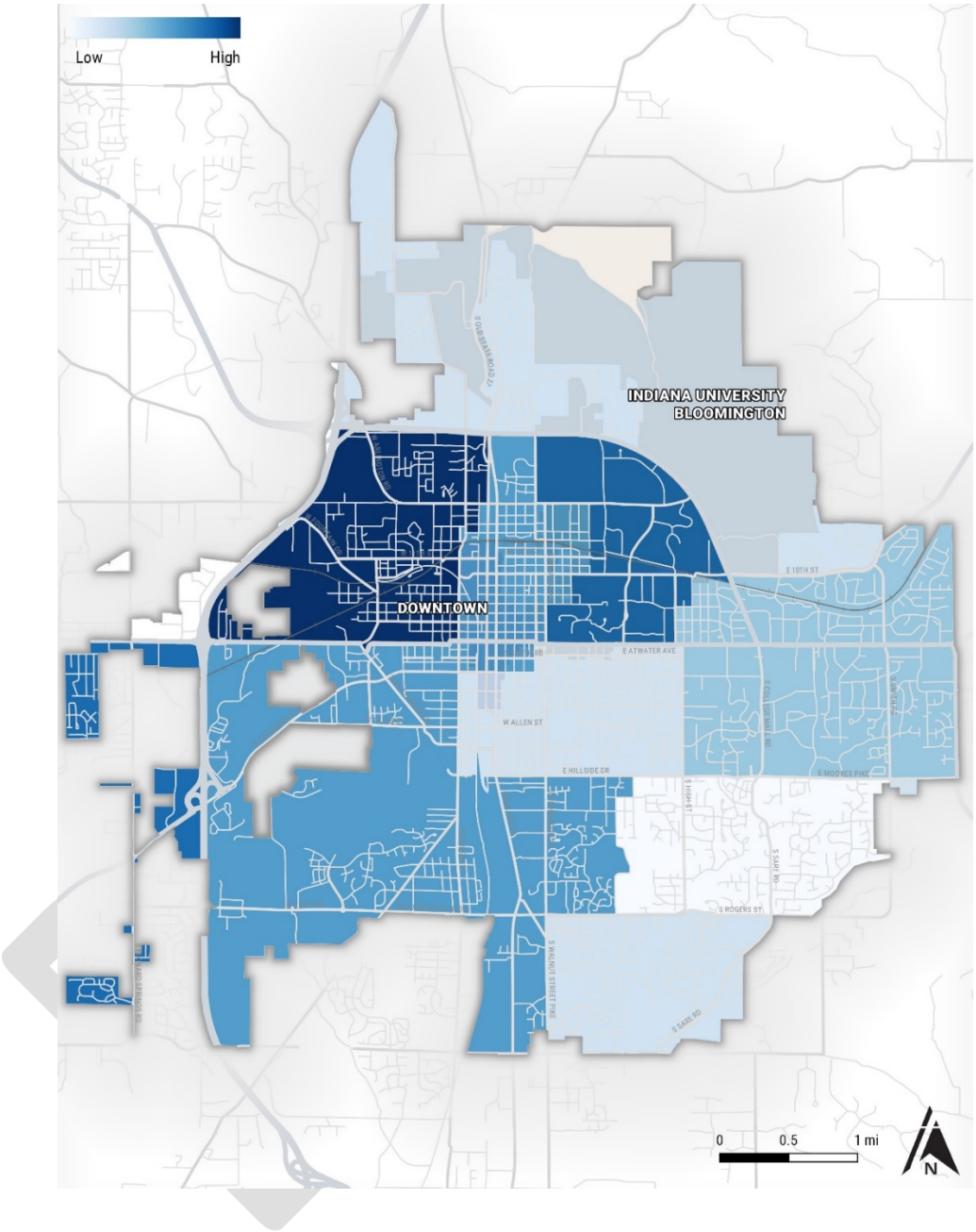
Access to Active Transportation Facilities

Providing multimodal infrastructure and promoting active transportation is a combined public health and planning approach to improve community health. In addition to providing open spaces, building walking and bicycle infrastructure that is accessible to all users is an effective way to promote physical activity. Proximity to walking facilities impacts the physical activity levels of communities. A study of five community clinics that provide health services to underserved populations found that clinical patients who lived near a trail were more likely to walk at least 30 minutes five times per week, compared to those patients who did not have a trail near their home.[10]

Bloomington's current pedestrian and bicycle network connects to many popular destinations in the Downtown area, including schools, grocery stores, retail shops, and the farmer's market. However, there are also several gaps in the city's active transportation network due to barriers from highways, railroads, and lack of adequate public ROW that continue to impact community members' access, ability, and comfort in walking and biking to destinations. Appendix C provides map of the current pedestrian and bicycle network and destinations.

[10] Pierce, J.R., Denison, A.V., Arif, A.A. et al. J Community Health (2006) 31: 289. https://doi.org/10.1007/s10900-006-9014-8.

Figure 2. Adult Physical Inactivity Rates in Bloomington by Census Track



Access to Transit

Reliable, connected, and high-quality transit service is important to supporting Bloomington's continued growth. As identified in the 2018 Comprehensive Plan,

> *Efficient and frequent public transit allows residents of all ages and abilities to function independently, avoid isolation, access destinations around town.*[11]

[11] City of Bloomington. 2018 Comprehensive Plan. Pg. 70.

Several studies found that public transit use is associated with less obesity, lower stress levels, and improved air quality. Additionally, public transit use (even as little as once per week) is associated with fewer car trips and more active trips, including walking and biking.[12]

Bloomington Transit is the main local transit service in the City and operates 49 buses in 14 bus routes fixed and demand responsive services. It generally operates from around 6:00 am to around midnight during the weekday. Weekend services are limited and infrequent. In 2016, there were approximately, 3.48 million passenger boardings, compared to 3.53 million boardings in 2015. This decrease in ridership may be contributed to the popularity of transportation network companies (TNCs) like Uber and Lyft.

Indiana University also operates a free fixed-route bus service called Campus Bus in Bloomington. It operates five routes from 7:30 am to midnight on weekdays and limited service on weekends. The ridership for the Campus Bus has also decreased in recent years.

Continued improvement and growth in the local public transit network is vital to supporting a multimodal transportation approach to transportation planning. For both community members who choose not to, or are unable to drive, public transit serves an important role in connecting community members to destinations across the community.

2.3 What has been done so far? Review of Past Studies

The City of Bloomington, Monroe County, and Indiana University have adopted guiding comprehensive and transportation plans that outline policies, strategies, and projects that impact the city's transportation network. These studies/plans are summarized in this section, as they relate to this Plan.

2018 Bloomington Comprehensive Plan

The Bloomington 2018 Comprehensive Plan situates Bloomington to achieve excellence through collaboration, creativity, cultural vitality, inclusion, and sustainability. The Comprehensive Plan sets forth an aggressive agenda and includes considerations for mass transit, bicycle and pedestrian transportation, motor vehicles, and parking. The 2018 Comprehensive Plan proposes three outcomes with identified metrics. These three outcomes are:

- The transportation network supports all travel modes for people of all ages and abilities;
- Public streets and rights of way have positive health impacts; and
- Public parking demands are managed efficiently and effectivity, to an optimum level of 85% of supply.

These three outcomes and their related metrics provide a measuring tool for the City in developing and implementing this Plan. Additional information on the 2018 Comprehensive Plan's principles and recommended policies for the Master Thoroughfare Plan is provided in Appendix C, along with relevant details from all the plans summarized in this section.

[12] M. Bopp, V. Gayah, M. Campbell. *Examining the Link. 2015. Between Public Transit Use and Active Commuting*. Int. J. Environ. Res. Public Health. 12 (4256-4274).

2017 Bloomington/Monroe County MPO Metropolitan Transportation Plan: Transform2040

The Bloomington/Monroe County (BMC) MPO Metropolitan Transportation Plan Transform2040 provides performance measures and future scenarios for the region. Transform2040 recommends a growth scenario which uses projects from the BMCMPO's FY 2016-2019 Transportation Improvement Program (TIP), and projections for urban infill. This scenario provided the "best multi-modal system performance in the Year 2040."[13] The projects recommended in the Transform2040 plan which are within one-mile buffer of Bloomington's city limit were considered when identifying projects for this Plan.

2012 Monroe County Comprehensive Plan

The 2012 Monroe County Comprehensive Plan complements the City's Comprehensive Plan and provides additional land use guidance for areas surrounding Bloomington. The County Comprehensive Plan describes rapidly developing areas in the County, and defines Bloomington Urbanizing Areas. The Bloomington Urbanizing Areas immediately adjoin the city and are expected to contain employment, estate residential[14], and urban residential land uses in addition to residential uses. The expected level of development from many of the areas identified by the County Comprehensive Plan will significantly impact transportation needs in Bloomington, such as the platted county lands just west of Bloomington (across Hwy 37). While these areas are not currently developed to the extent predicted by the County, ensuring they are considered in this Plan will help alleviate additional vehicular congestion when they are developed.

2010 Indiana University Bloomington Master Plan

IU Bloomington developed its 2010 Master Plan to guide their campus' development. The Master Plan identified the campus' significant opportunity to decrease its motor vehicle footprint as most campus users live within three miles of campus: 90% of undergraduate students; 75% of graduate students; and 57% of faculty.[15] The Master Plan also provides a list of recommended multimodal transportation projects to increase the safety and comfort of travel to and around campus. From the Master Plan's project list, the following two recommended projects provide opportunities to leverage the City's and the University's partnership and coordination efforts.

- The University's development of a bus transit route on East 7th Street from downtown Bloomington to the Indiana Memorial Union.
- The development of a multiuse recreational path along SR 45/46 Bypass with crossing improvements at East 10th Street. The proposed North Range Road expansion will benefit not only campus users, but also Bloomington residents who live north of campus or who are accessing amenities along this road, such as Arlington Heights Elementary School and Monroe county Division of Family Resources.

2008 Bicycle and Pedestrian Transportation and Greenways System Plan

The 2008 Plan is based off a conceptual plan that identified three distinct character areas (Central City, Urbanizing Ring, and Fringe), and seven primary bicycle and pedestrian facility types (signed bike route, bike lanes, sidewalks, etc.). Since the Plan's adoption in 2008, the City has taken great strides in active

[13] Bloomington/Monroe County Metropolitan Planning Organization. Transform2040. Pg. 9.
[14] Estate residential land uses are defined by Monroe County as residential property within designated communities that do not have the full range of typical urban infrastructure services and are not located within conservation residential areas.
[15] Indiana University Bloomington, 2010 Master Plan.

transportation planning and implementation. From 2010 to 2017, Bloomington saw a 94 percent increase in the mileage of bicycle facilities, trails, and paths around the city.[16] The popular B-Line Trail was completed during this period in 2011.

> *Bloomington's progress was recognized by the League of American Bicyclists as the City's Bicycle Friendly Community designation improved from a bronze designation in 2004, to a silver designation in 2010, to a gold designation in 2014.*[17]

2002 Growth Policies Plan – Part 5, Master Thoroughfare Plan

The 2002 Master Thoroughfare Plan, as part of the Growth Policies Plan focuses on integrating "all modes" as to create a transportation network that links together all parts of the community, including activity centers and recreation opportunities. In response to the growing rate of congestion, the 2002 Plan encouraged actions to reduce single-occupancy vehicle dependency, and use of "alternative transportation modes." This Plan is an update to the Master Thoroughfare Plan.

2.4 Major Transportation Issues

While travel modes other than private automobile continue to grow in the City of Bloomington, significant network gaps and safety concerns remain in the transportation system.

The Need for Multimodal Transportation Planning

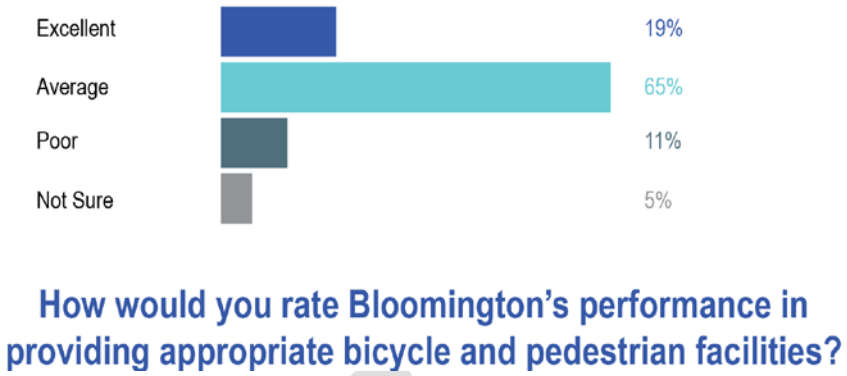
The 2018 Comprehensive Plan identifies the need to take a multimodal transportation approach to planning in Bloomington. The 2018 Plan's call for a "Mobility Management" focused approach that highlights the affordability and inclusionary benefits of multimodal planning. As identified in the 2018 Plan, these benefits can make a significant impact in Bloomington as nationwide households spend, on average, 19 percent of household income on transportation;[18] and, approximately 20 percent of Bloomington's population has a disability.[19] Multimodal transportation planning benefits not only low- and moderate-income households, and people with disabilities, but also the broader community. As mobility options and connections improve in Bloomington, more destinations become accessible to more community members.

Voices of the Public: WikiMap Survey Summary

As part of this project, an online interactive map-based survey (called a WikiMap) was used to better understand existing walking and bicycling issues and routes. Based on feedback from over 250 WikiMap responses, 65 percent of respondents feel that the City provides bicycling and pedestrian facilities on an "average" level of service. Nineteen percent of respondents feel that the City provides facilities on an "excellent" level of service, and only five percent said that the City provides facilities on a "poor" level of service. In the face of upcoming pressure on the City's transportation network due to behavior changes and growth, the City has an opportunity to take bold steps now to assure continued improvement on its delivery of bicycle and pedestrian facilities.

[16] City of Bloomington. 2018 Bloomington Comprehensive Plan. Pg. 69.
[17] City of Bloomington. 2018 Bloomington Comprehensive Plan. Pg. 69.
[18] Federal Highway Administration.
[19] Council for Community Accessibility.

Community members also provided feedback on popular walking and biking routes and destinations, difficult and high traffic routes, and desired improvement locations. Key findings from the over 250 WikiMap responses are outlined in Appendix A.



2.5 Existing Motor Vehicle Traffic

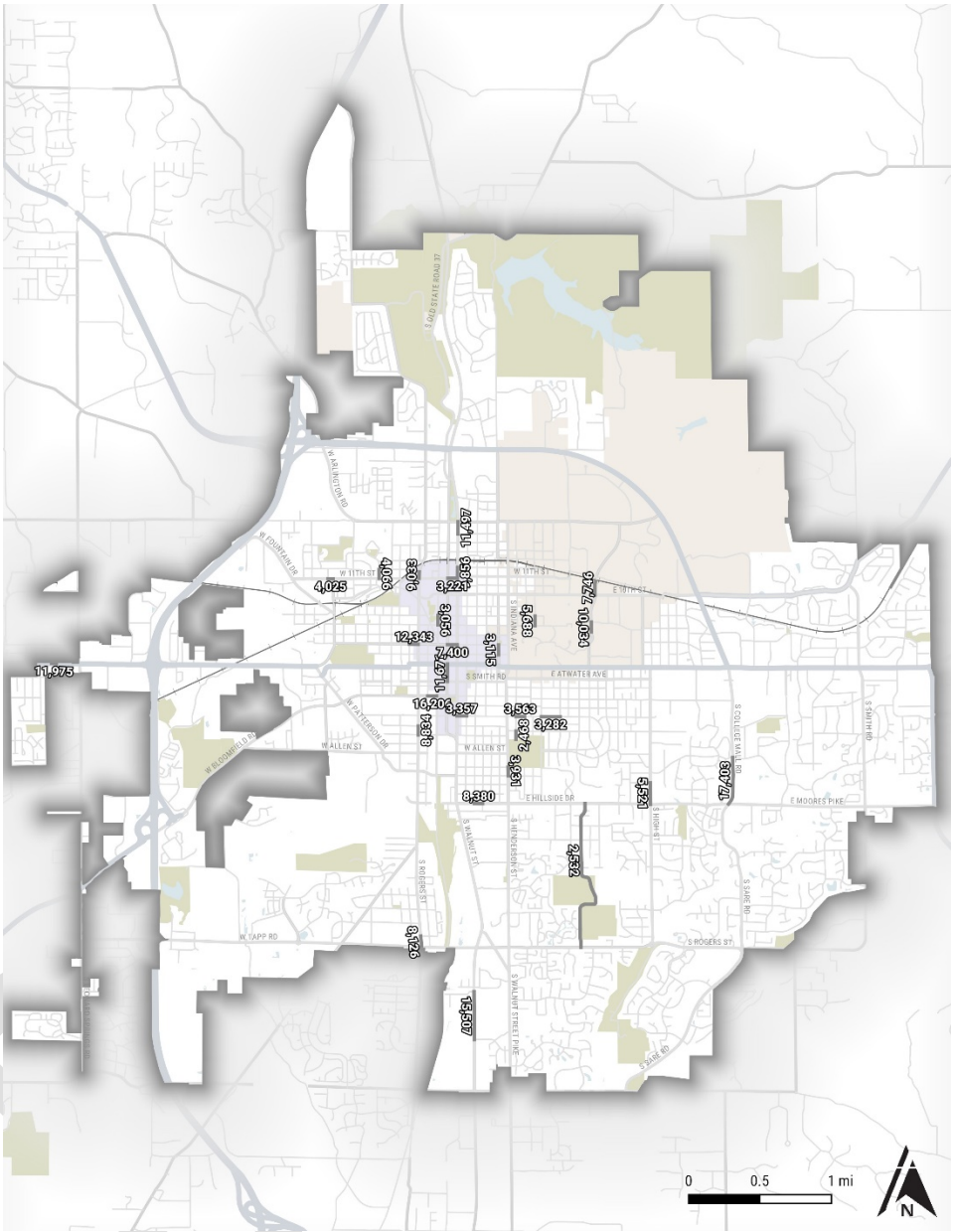
Figure 3 shows the latest average daily traffic (ADT) volumes on major thoroughfares in Bloomington. The map includes several major roads, such as SR 45/46 Bypass, North Walnut Street, N College Avenue, S College Mall Road, S Sare Road, West Kirkwood Avenue, West and East Third Street, East Second Street, West Tapp Road, and West Country Club Drive that serve as regional commuting routes. Table 3 shows the roadways with highest ADT in Bloomington.

Table 3. *Roadways with Highest ADT*

Street	Location	Year	ADT
Bloomfield Road	West of College Mall Road	2014	20,170
College Mall Road	South of Covenanter Road	2014	16,914
E. 2nd Street	East of S Roger Street	2014	16,339
Country Club Drive	West of Walnut Street	2014	13,753
Roger Street	North of Kirkwood Avenue	2014	12,362
N. College Avenue	South of E. 15th Street	2018	12,314
E. 3rd Street	West of Hawthorne Drive	2018	12,266
S. Walnut Street	South of E. 2nd Street	2018	12,090
Sare Road	South of E. Cathcart Street	2015	11,936
S. College Avenue	South of E. 2nd Street	2018	11,671
N. Walnut Street	South of E. 15th Street	2018	11,497
Hillside Drive	West of Henderson Street	2015	11,465
E. Atwater Avenue	West of Hawthorne Drive	2018	11,091
10th Street	West of Indiana Avenue	2013	10,985

Based on the 2013 Quality/Level of Service Handbook prepared by the Florida Department of Transportation, a two-lane undivided local roadway with less than 35 mph in urban area, can carry approximately 14,000 ADT. Furthermore, FHWA guidelines for road-diet, indicate that a two-lane roadway with center-turn lane can carry approximately 20,000 ADT. These guidelines, as well as field observation of traffic flow in Bloomington, shows that generally the existing traffic volumes are adequately accommodated by the available travel lanes on the roadways.

Figure 3. DRAFT Average Daily Traffic



2.6 Pedestrian-Motor Vehicle and Bicycle-Motor Vehicle Crash Analysis

From 2010 to 2015, the City's reported pedestrian-motor vehicle and bicycle-motor vehicle collisions centered around the downtown arterials, primarily north of East Third Street. The concentration of collisions along these streets is due to a variety of factors including the number of nearby destinations, traffic volumes, vehicular speed, and roadway design. As the City prepares for increasing population growth and mode shift, these collision-hot spots should be examined for vulnerable roadway users, and targeted safety design improvements should be implemented. The bicycle projects included in this Plan address some of these concerns.

Figure 4. Pedestrian-Motor Vehicle Collision Density, 2010-2015

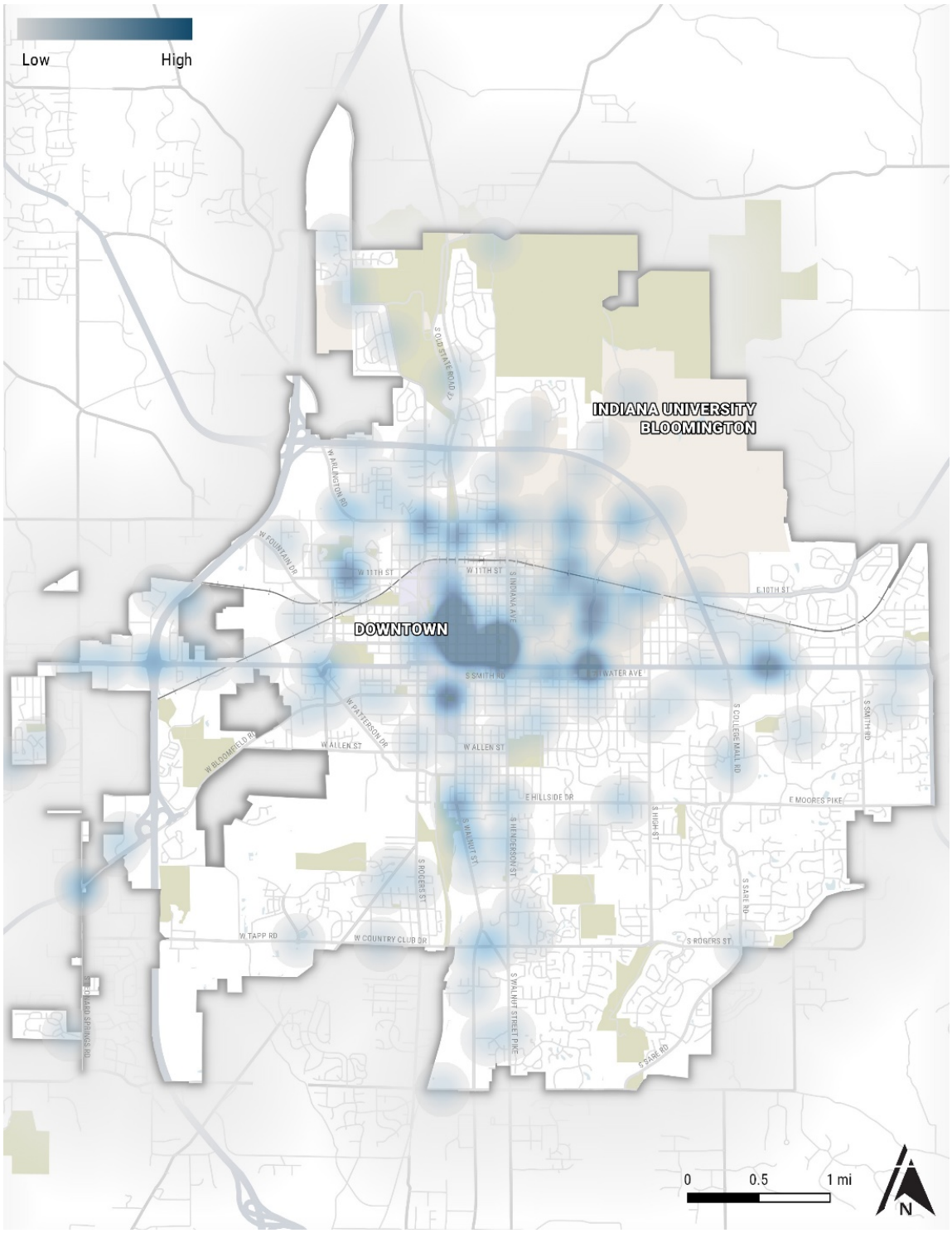
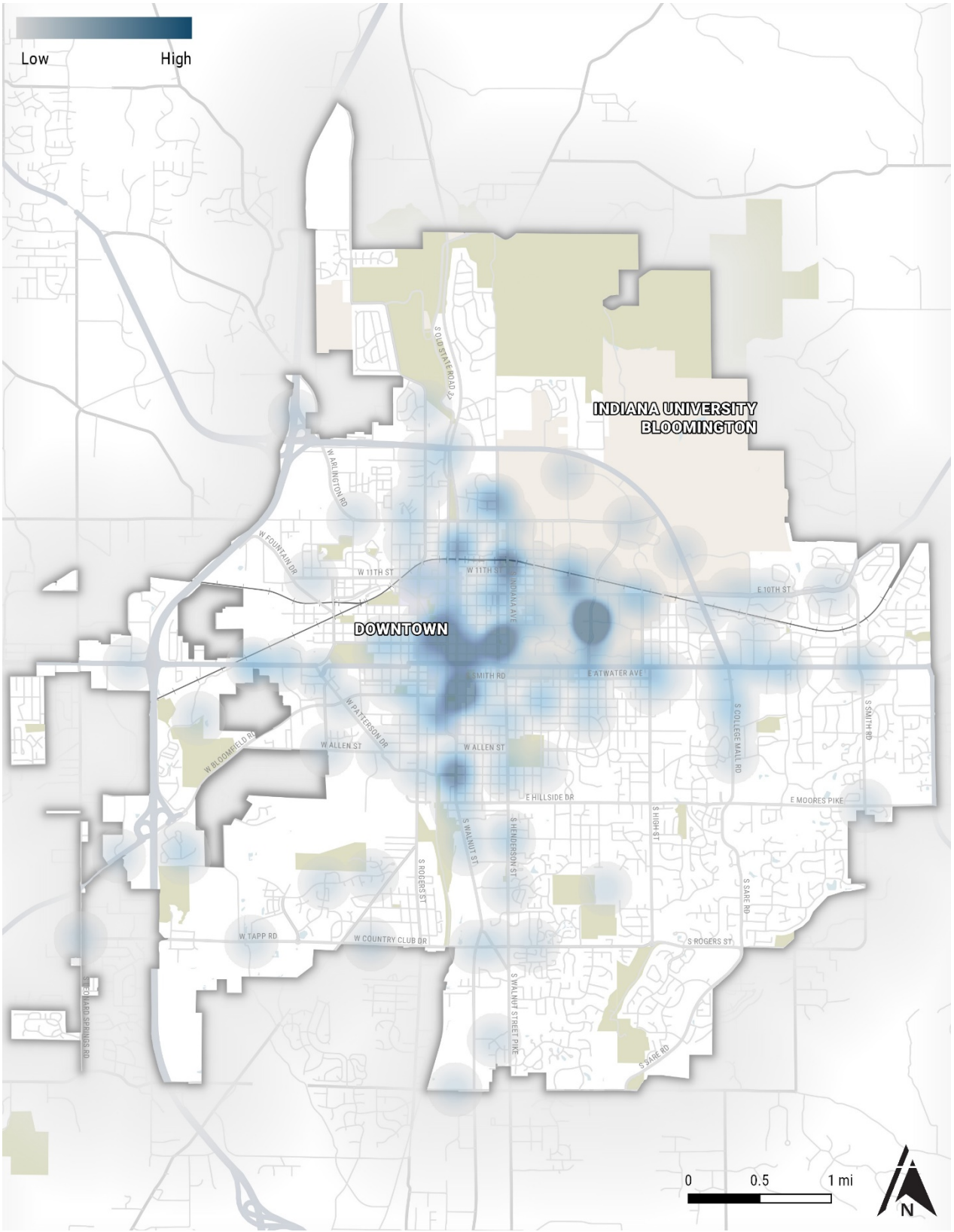


Figure 5. Bicycle-Motor Vehicle Collision Density, 2010-2015

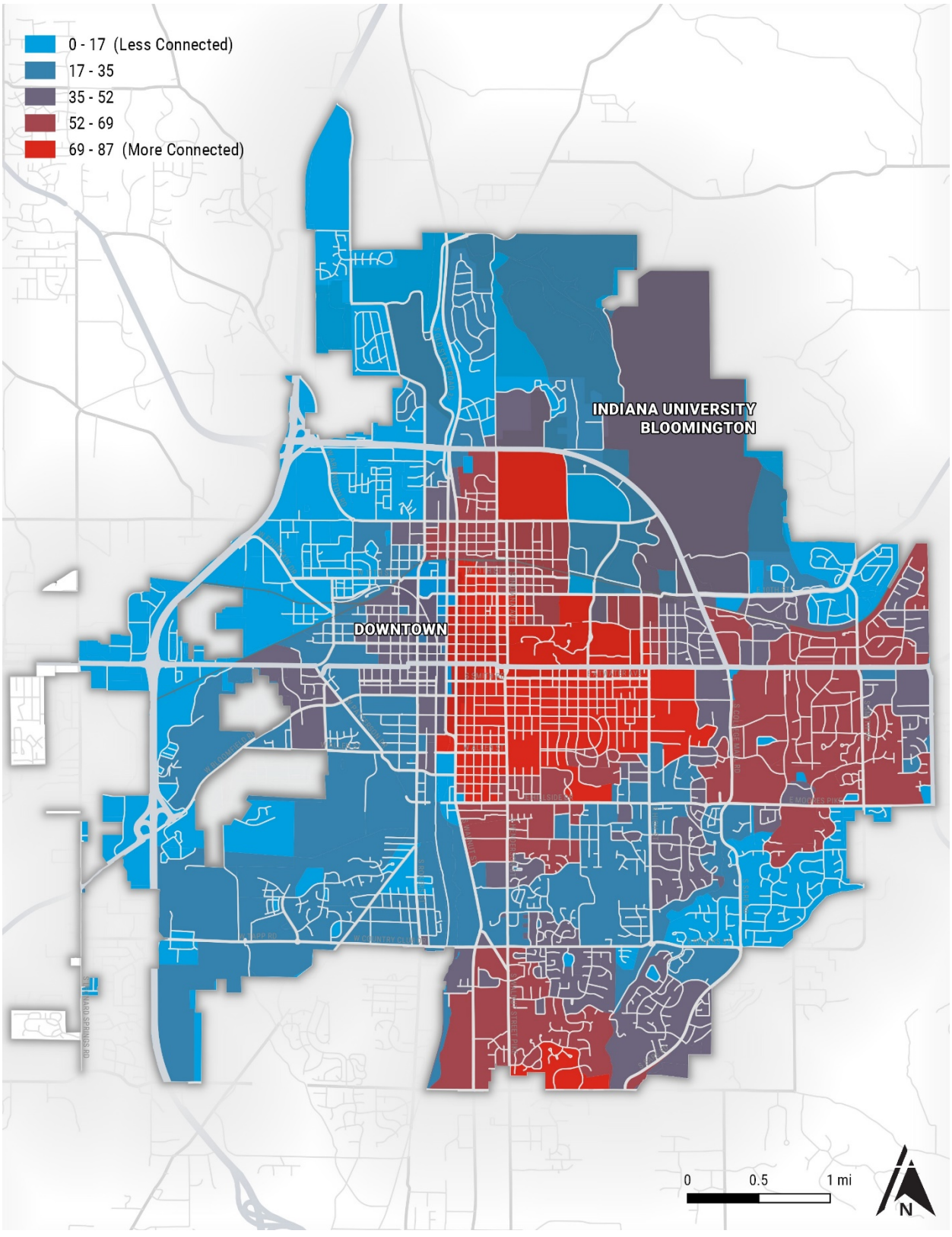


2.7 Existing Bicycle Network Analysis

To assess the connectivity of the existing bicycle network in Bloomington, the Bicycle Network Analysis (BNA) tool was used. The tool specifically measures connectivity of the low-stress bicycle network, as a connected and comfortable network is vital for encouraging and supporting bicycling for people of all ages and abilities. The BNA tool uses local roadway data to identify areas of low connectivity, find gaps in the existing network, and estimate connectivity improvements from specific projects. The BNA tool's connectivity score represents the number of destinations, per census block, that are accessible through a low-stress (or high-comfort) bicycle network. The types of destinations that are part of the BNA tool include parks, medical services, transit, retail, and employment. The BNA showed that there is substantial lack of bicycle connectivity west of Rogers Street and Kinser Pike as well as the southeastern side of the City. The BNA's findings align with the observed pattern of higher levels of physical inactivity near the Crescent Bend neighborhood as discussed in Section 2.2.

The BNA tool results were considered in combination with the reported adult physical inactivity rates, WikiMap results, and crash data. Together these maps identify patterns of pedestrian and bicyclist activity, barriers to active transportation, and opportunity sites for improving safety and mobility in Bloomington.

Figure 6. Bloomington's Bicycle Connectivity



3. Street Network and Classifications

A street network is the backbone of any city's transportation system. Hence, proper planning, design, operation and maintenance of Bloomington's street network is critical to sustain the city's economic vitality as well as establish a sense of place. The Plan's recommendations are intended to preserve the public right-of-way (ROW) and classify streets so that they are aligned with the vision and goals in the 2018 Comprehensive Plan.

3.1 Transportation Planning Approach

The following section describes key elements of this Plan's approach. These elements form the basis for identifying new street networks, recommended improvements, and how the City of Bloomington's streets are categorized. These elements build off national best practices for multimodal transportation planning and design.

Urban Grid Network

Having an urban, orthogonal grid provides a structure for creating blocks and land parcels in a regular, organized pattern. An urban street and land grid:

- Provides the most efficient distribution of motorized and nonmotorized traffic volume and reduces the pressure from any single roadway;
- Is regular and predictable for all roadway users;[20]
- Can encourage people to walk to their destinations;[21] and
- Provides economic benefits via easy building siting and localized travel.[22]

Coordinated Land Use and Transportation

Creating a healthy and vibrant community requires strong correlation between the transportation facility and the surrounding land uses. For example, a residential neighborhood cannot be vibrant if a six-lane highway cuts through it. Hence, the design of transportation facilities must match the surrounding land use context and vision. Conversely, land uses can align with transportation by strategically going about zoning and site design, realizing efficiencies like mixed use and transit oriented development. This Plan recommends new street typologies that are aligned with the surrounding land use and character.

Complete Streets

The Complete Streets approach encourages communities to plan and design streets not only for multiple modes of travel, but for people of different age and abilities. Complete Streets considers how people connect between modes, and the importance of designing roadways with respect for their local context. The Bloomington/Monroe Metropolitan Planning Organization (MPO) 2009 Complete Streets policy calls on the incorporation of "community values and qualities including environment, scenic, aesthetic historic and natural resources, as well as safety and mobility" into transportation planning and design.[23] Some of the most common benefits of Complete Streets projects include:

[20] Ellickson, R. The Law and Economics of Street Layouts: how a grid pattern benefits a downtown. Alabama Law Review. 2013.
[21] Congress for New Urbanism. Street Networks 101. Accessed 05/04/18. https://www.cnu.org/our-projects/street-networks/street-networks-101.
[22] Ellickson, R. The Law and Economics of Street Layouts: how a grid pattern benefits a downtown. Alabama Law Review. 2013.
[23] Bloomington/Monroe County Metropolitan Planning Organization. Adoption Resolution FY 2009-2008: Resolution Adopting a Complete Streets Policy. January 9, 2009.

- Improved safety and comfort for all roadway users
- Easier crossings for pedestrians and bicyclists
- Improved access to transit
- Increased transportation choices
- More opportunities for community members to be physically active in their everyday lives
- Improved access to schools, community centers, businesses, trails, and parks

3.2 Street Typologies

This section describes new street typologies developed for the Plan. These typologies align with the multimodal transportation policies outlined in the Comprehensive Plan and are intended to complement the traditional functional classifications. Traditionally, surface streets are generally classified as an arterial, collector, or local street based on the anticipated function of the street. These functional classifications are primarily based on vehicular capacity, level of vehicular access, and posted speed of the roadway.

The typologies presented in this section consider local context, follow a Complete Streets approach, and recognize the City's constrained ability to expand most roadways. They are ordered from the lowest level of vehicular traffic volume to the highest, and from the most pedestrian oriented to the least.

Shared Streets

Designed for pedestrians, bicyclists, transit riders, and motor vehicle drivers to operate in a "shared" space, Shared Streets utilize design elements such as pavement treatments, planters, roadway widths, parking spaces, and other elements to direct traffic flow and to encourage cooperation among travel modes in typically flush or curbless environments.[24] They are ideal for locations with high pedestrian activity with dense commercial or mix-used land uses.

Shared Street in Asheville, NC

As Shared Streets encourage multiple roadway users to interact and move between spaces in the roadway, it is imperative that vehicles travel at speeds as slow as 10 to 15 mph along the street. The slower speeds encourage a wide variety of uses along the street including commercial, recreational, and park spaces.[25]

The Federal Highway Administration (FHWA)'s Accessible Shared Streets guidebook encourages transportation professionals to work closely with representatives from local disability communities to identify the area's unique climate and context design considerations.[26]

[24] PedBikeSafe. Pedestrian Safety Guide and Countermeasure Selection System. Shared Streets. Accessed 05/03/2018. http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=67.

[25] PedBikeSafe. Pedestrian Safety Guide and Countermeasure Selection System. Shared Streets. Accessed 05/03/2018. http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=67.

[26] FHWA. Accessible Shared Streets: notable practices and considerations for accommodating pedestrians with vision disabilities. 2017. Accessed 05/03/2018. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/accessible_shared_streets/fhwahep17096.pdf.

Figure 7 shows the typical cross-section of a shared street. It should be noted that the design elements shown in the figure, and in all subsequent cross-sections, may vary depending upon input from community members, adjacent property owners, as well as City's priority for the street at the location.

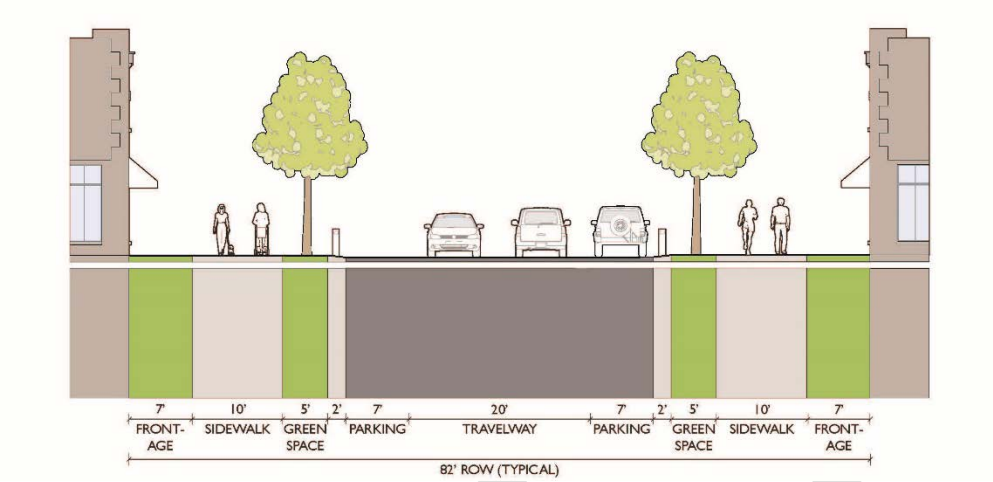


Figure 7. Typical Cross-section of Shared Street

Neighborhood Residential Streets

Bloomington has several local residential streets that provide access to single and multifamily homes and are not intended to be used for regional or cross-town commuting. These Neighborhood Residential Streets have slow speeds and low vehicular volumes with general priority given to pedestrians and bicyclists to maximize safety. Other characteristics of the street are provided in Table 4. Figure 8 shows the typical cross-section of neighborhood residential street with on-street parking on both sides of the street.

Example Neighborhood Residential Street

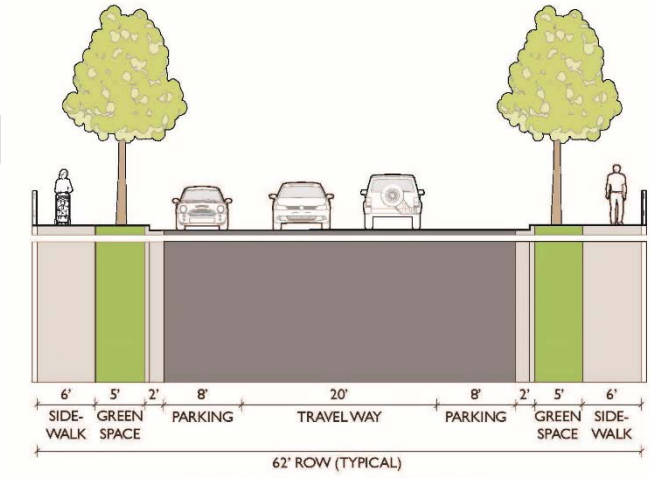


Figure 8. Typical Cross-section of Neighborhood Residential Street

Main Street

A Main Street is the economic and communal heart of a city. It exemplifies the character of the community while also being the center of commerce and cultural activity. It is usually surrounded by businesses, restaurants, and government services. Pedestrian activity is generally high on Main Streets. Figure 9 shows the typical cross-section of a Main Street with a center turn-lane and on-street parking and protected bike lanes on both sides of the street. Depending on the local context, some of these elements may be removed to provide more space for sidewalks where pedestrian activity is anticipated to be particularly high.

Example Main Street

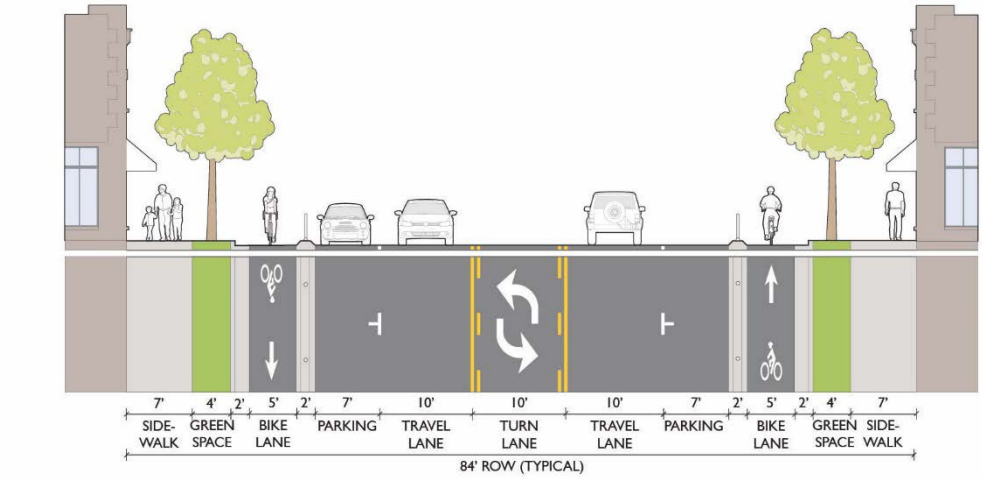


Figure 9. Typical Cross-section of Main Street

General Urban Street

General Urban Streets provide vital connections between the suburban street network and the downtown core in Bloomington. They carry higher traffic volumes and operate at higher speed than Main Streets, while providing access to surrounding commercial and medium/high-density mixed use facilities. Figure 10 shows the typical cross-section of the street type.

Example General Urban Street

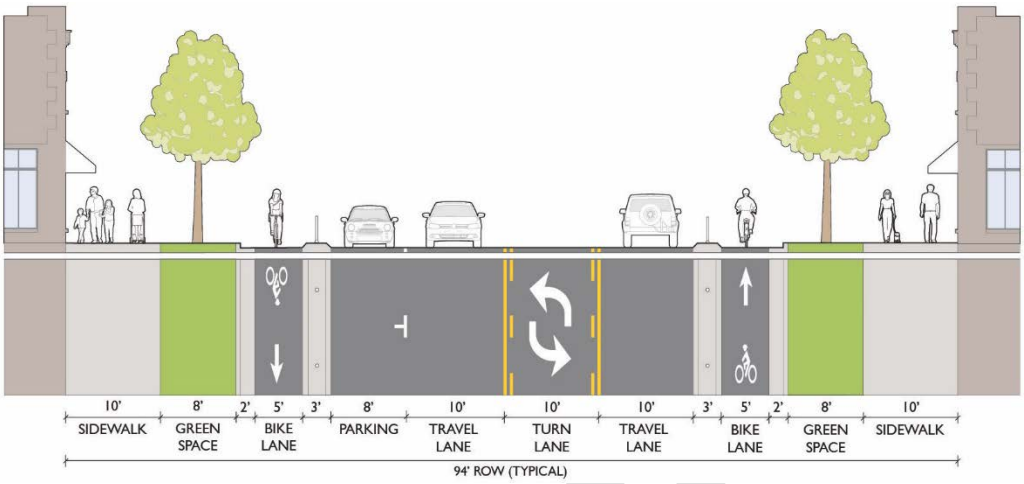


Figure 10. Typical Cross-section of General Urban Street

Neighborhood Connector Street

Neighborhood Connector Streets provide connections between the Neighborhood Residential and General Urban or Suburban Connector streets. They collect traffic from residential neighborhoods and distribute it to the broader street network. Most of the land uses surrounding neighborhood connectors are generally low/medium density residential with commercial nodes as it connects to the larger street network. Figure 11 shows the typical cross-section of the street type.

Example Neighborhood Connector Street

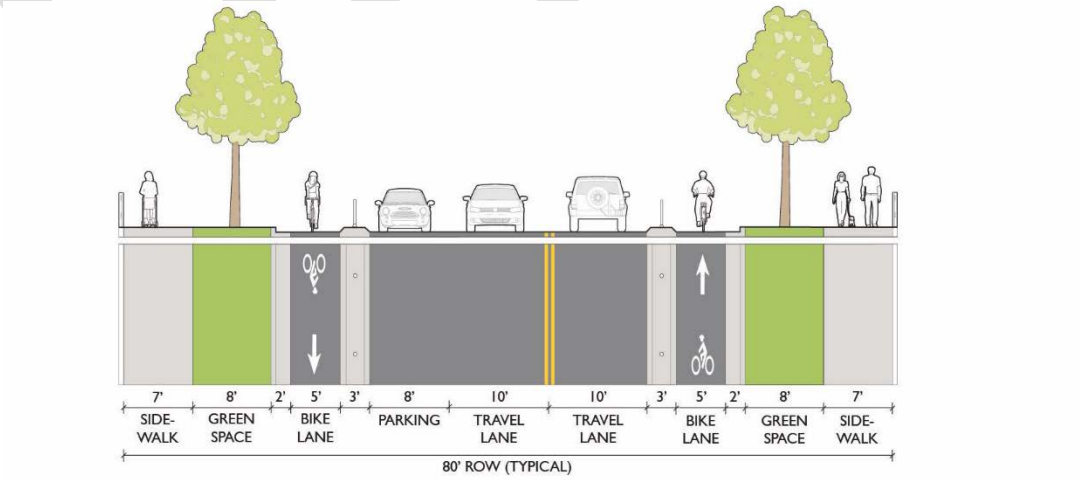


Figure 11. Typical Cross-section of Neighborhood Connector Street

Suburban Connector Street

Suburban Connector Streets carry the highest volume of traffic and are intended to provide higher vehicular mobility between different areas in Bloomington. Vehicular speed is generally high and access to the roadway is limited on these streets. They carry traffic for longer trip lengths and provide lower comfort for people who walk and bike. Figure 12 shows the typical cross-section of the street type.

Example Suburban Connector Street

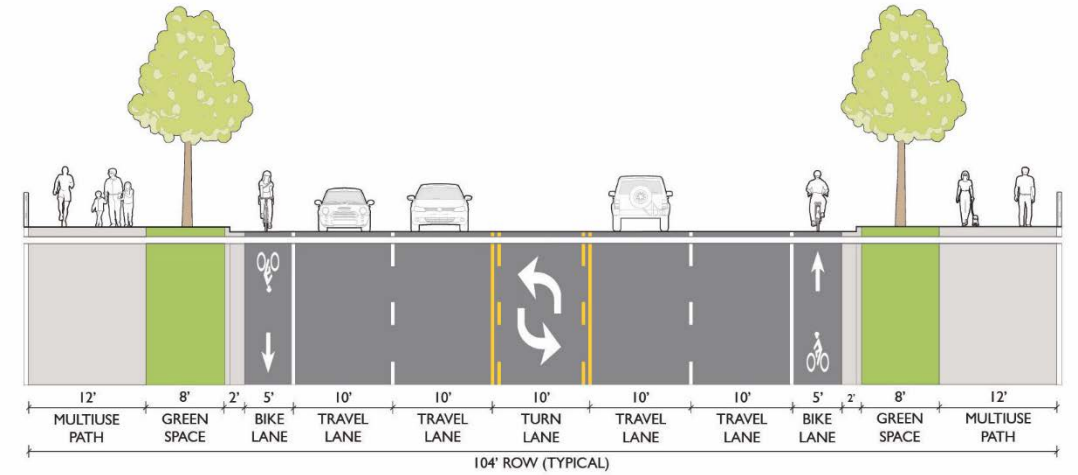


Figure 12. Typical Cross-section of Suburban Connector Street

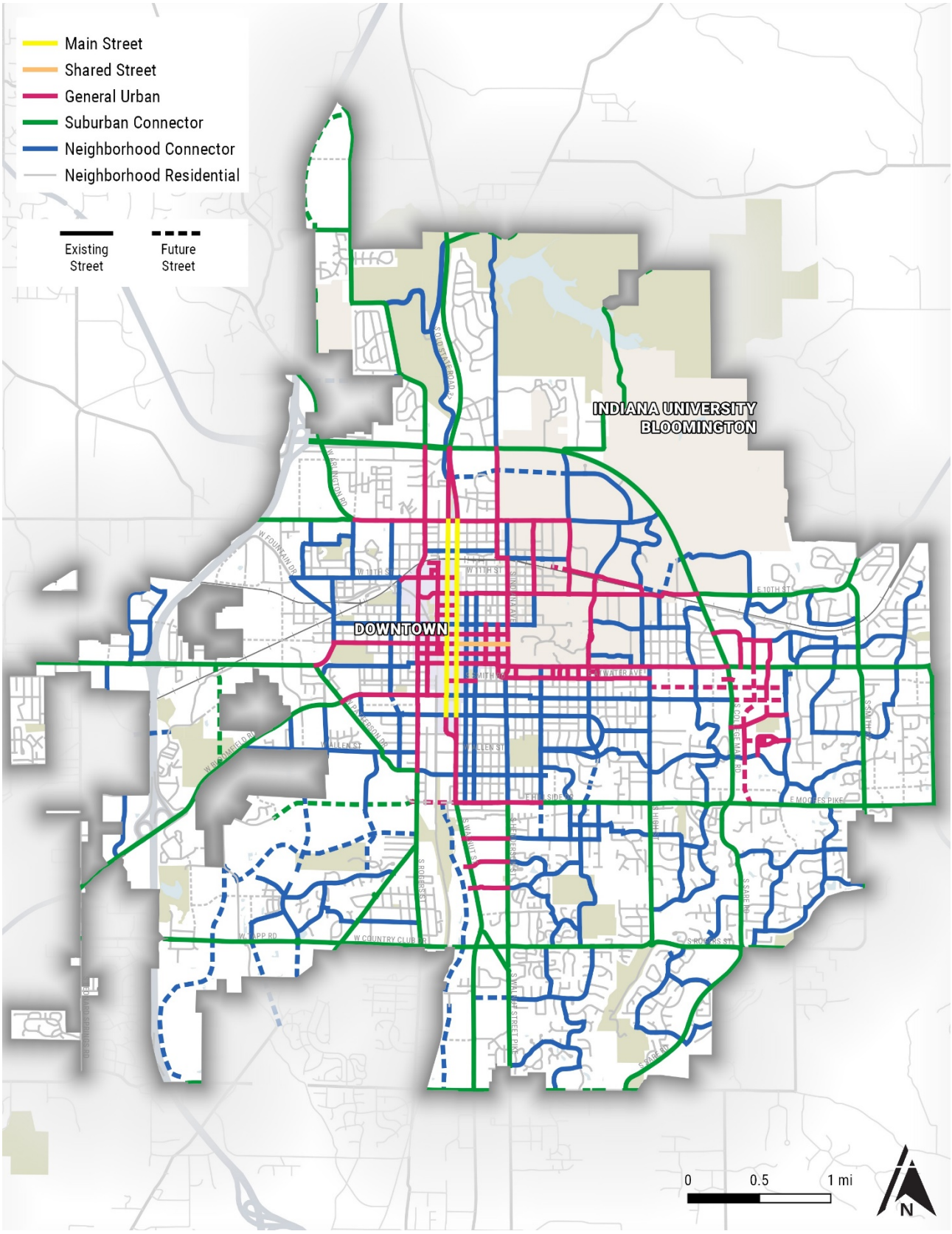
Table 3 provides a summary of the key features of each street type. The Default Mode Priority listed for each is intended to aid decision-making about potential tradeoffs when faced with constraints such as budget or ROW; however, it is flexible depending on context. Pedestrians are generally given top priority in urban contexts, but the priority may vary by project based on unique issues within a corridor. Major transit routes may also necessitate shifting modal priorities. Deviations from the default mode priority should be documented during the project scoping and design processes.

Figure 13 shows the map of new street types for Bloomington based on the above typologies and guidance on Table 3. Appendix D provides a detailed design framework as well as step-by-step guidance on the typologies were selected for specific streets.

Table 4. *Summary of Typologies*

Street Typology	Land Use Context and Function	Transportation Context and Function	Default Mode Priority	Typical Features
Shared Street Candidate Streets: Selective local streets in the downtown and other denser urban commercial areas	• Medium to high density • Mixed-use, retail, downtown office, dense residential • Buildings close to street	• High volumes of pedestrian activity and bike traffic • Low volumes of autos • Little to no transit • Extremely low speeds • ADA-compliant slopes • Blends transportation and public space	**Higher** Pedestrian Bicycle **Lower** Auto Transit	• Narrow, undelineated space shared by all modes in addition to pedestrian-only space. • Designated parking stalls street furniture, sidewalk cafes, small-scale lighting • Street trees and landscaping • Unique pavement
Neighborhood Residential Street Candidate Streets: Any local street in residential neighborhoods	• Low to medium density • Single-family and multi-family residential • Buildings with moderate setbacks from the street	• Slow speeds • Focus on pedestrian safety • Traffic calming • Typically allows on-street parking	**Higher** Pedestrian Bicycle **Lower** Transit Auto	• No centerline • Sidewalks • Bikeways • Unmarked on-street parking • Street trees and landscaping
Main Street Candidate Streets: College, Walnut, (from 17th St to 1st St)	• Medium to high density • Primarily commercial with small to medium businesses and mixed use • Buildings close to street • Outdoor events & dining • Often has historic character	• High volumes of pedestrian activity and bike traffic • Medium volumes of autos and transit • Low speeds • Facilitates access • Often includes metered on-street parking	**Higher** Pedestrian Bicycle **Lower** Transit Auto	• 2 travel lanes • Wide sidewalks • Bike lanes or bikeways • On-street parking • Street furniture, sidewalk cafes, small-scale lighting • Street trees and landscaping
General Urban Street Candidate Streets: Patterson Dr Roger St	• Medium to high density • Mixed-use, downtown office, dense residential • Buildings close to street	• Medium to high pedestrian activity and bike traffic • Medium to high volumes of autos and transit • Low speeds • Facilitates access • Often includes on-street parking	**Higher** Pedestrian Bicycle Transit **Lower** Auto	• 2 or 3 travel lanes • Wide sidewalks • Bike lanes • On-street parking • Street trees and landscaping
Neighborhood Connector Street Candidate Streets: Henderson St 2nd St	• Low to medium density • Residential with occasional businesses • Buildings with moderate setbacks from the street • Connect multiple neighborhoods	• Medium to high pedestrian activity and bike traffic • Medium volumes of autos and transit • Low to moderate speeds • Facilitates access while providing continuous walking and bicycling routes	**Higher** Pedestrian Bicycle Auto **Lower** Transit	• 2 travel lanes • Sidewalks • Bike lanes • Some on-street parking • Street trees and landscaping
Suburban Connector Street Candidate Streets: Hillside Dr College Mall Rd	• Low to medium density • Suburban commercial, residential, and institutional areas • Buildings with moderate to deep setbacks	• High volumes of autos and transit • Low to mid pedestrian activity (higher on transit routes) • Low bike traffic Moderate to high speeds	**Higher** Auto Transit **Lower** Pedestrian Bicycle	• 2 or 4 travel lanes • Median or center turn lane • Sidewalks or multiuse path • Protected bike lanes or multiuse path • Street trees and landscaping

Figure 13. Street Typologies



Design Parameters

The following tables identifies typical parameters for street design and shows preferred dimensions for different street typologies in Bloomington. Based on specific site conditions, City staff may approve different dimensions with the Public Works Director's approval. Deviation from these parameters should be carefully considered and documented appropriately. Appendix D also provides detailed guidance on allowable deviation from these parameters.

Table 5. *Preferred Roadway Zone Parameters*

Typology	No. of Travel Lanes	Lane Width	Center Turn Lane / Median	Primary Bicycle Facility Type (per Figure 14)	On-Street Parking	Target Speed (mph)
Shared Street	No centerline	20-40' Total	None	No dedicated bike facility	Optional	10
Neighborhood Residential Street	No centerline	20' Total	None	Neighborhood Greenways or no dedicated bike facility	Non-delineated	15-20
Main Street	2-3	10'	Optional	Protected, Buffered or Conventional Bike Lanes	Recommended; Delineated	20-30
General Urban Street	2-3	10'	Optional	Protected, Buffered, or Conventional Bike Lanes	Recommended; Delineated	25
Neighborhood Connector Street	2	10'	None	Protected, Buffered, or Conventional Bike Lanes	Optional	25
Suburban Connector Street	2-4	10'	10'	Protected Bike Lanes or Multiuse path	None	30-35

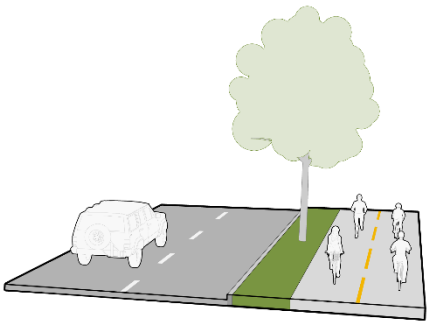
Table 6. *Preferred Pedestrian Zone Parameters*

Typology	**Frontage Zone**[1] Door swings, awnings, café seating, retail signage displays, building projections, landscape areas	**Pedestrian Zone** Clear space for pedestrian travel, should be clear of any and all fixed obstacles	**Greenscape / Furnishing Zone** Street lights, utility poles, street trees, landscaping, bike racks, parking meters, transit stops, street furniture, signage	**Total Width** (Lower value excludes Frontage Zone)
Shared Street	8'	10'	5'	15'-23'
Neighborhood Residential Street	N/A	6'	5'	11'
Main Street	8'	7'	4'	11'-19'
General Urban Street	8'	10'	8'	18'-26'
Neighborhood Connector Street	8'	7'	8'	15'-23'
Suburban Connector Street	N/A	12' (Multiuse Path)	8'	20'

[1] Frontage zone may be accommodated within building setback requirement

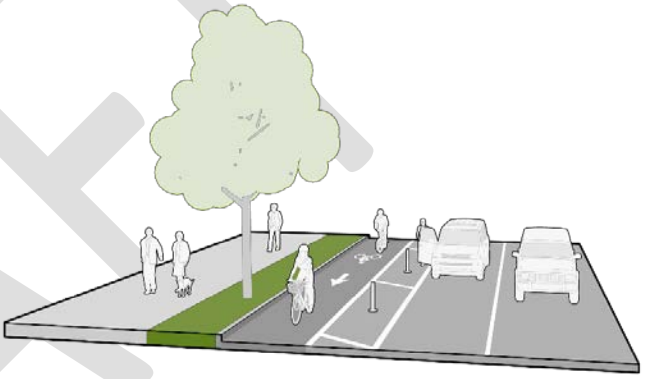
3.3 Bicycle Facility Types

Multiuse Paths and Trails



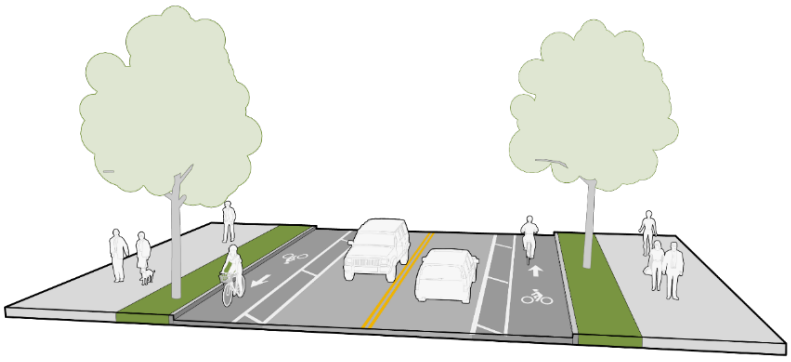
Multiuse paths are dedicated facilities for bicyclists and pedestrians that are typically located adjacent to high-speed roads with very few roadway or driveway crossings. They are accommodated within the rights-of-way of the roadways. They are preferred by less experienced bicyclists because of their separation from traffic. More experienced bicyclists may avoid them if pedestrians and slower bicyclists are present. Snow removal and sweeping of these paths may require specialized equipment. Additionally, tree roots growing under the pavement may require periodic maintenance to preserve a comfortably smooth pathway surface. Alternatively, multiuse trails are shared use facility that are separate from roadways and on its own right-of-way.

Protected Bike Lanes



Protected Bicycle Lanes (PBLs) are on-street bicycle lanes that are physically separated from motor vehicle traffic. PBLs can be designed for one-way or two-way bicycle traffic. Additionally, they can be level with the travel lane, raised but still lower than the sidewalk, or level with the sidewalk. This bikeway type combines the user experience of a multiuse path with the on-street infrastructure of bike lanes. Separation from traffic can be achieved with physical elements such as a lane of parallel parking, planters, curbing, or flexible posts. PBLs require added design considerations at driveways, transit stops, and intersections (especially for two-way protected bike lanes) to manage conflicts with turning vehicles and crossing pedestrians. They may require bicycle-specific signals or phasing. Colored pavement or other visual treatments may be used to enhance visibility and raise awareness of the bike lane, especially at conflict areas like driveways and intersections. Stormwater treatment is one of the considerations when installing protection such as curbs. This may be mitigated by installing pre-cast concrete blocks with drainage sleeves that allow storm water to access existing gutter and storm drain systems. Specialized street sweepers may be required to maintain narrow facilities.

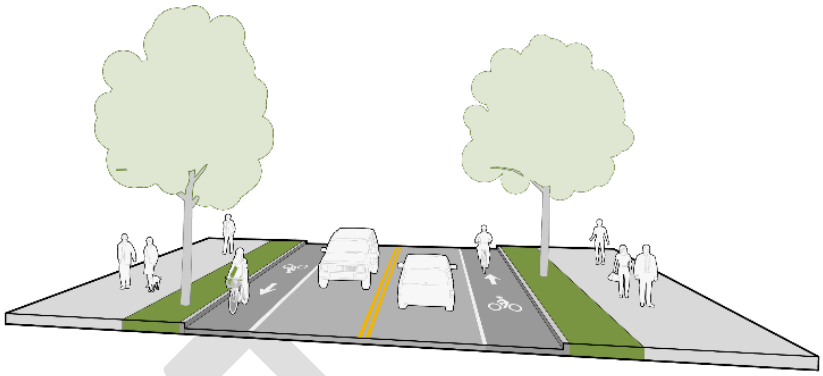
Buffered Bike Lanes



Buffered Bike Lanes provide a greater level of comfort for bicyclists than conventional bike lanes by way of a lateral painted buffer between the bike lane and the travel lane, parked cars, or both. The buffer is demarcated with two longitudinal strips and diagonal pavement (i.e., gore) striping. A raised profile stripe or rumble strip may also deter motor vehicles from encroaching into the bike lane while being more compatible with snow plows, but would also make access to and from the buffered lanes more difficult for bicyclists. Maintenance

considerations are similar to bike lanes except that buffered lanes have more striping that needs to be refreshed.

Conventional Bike Lanes



This bikeway type uses signage and striping to allocate dedicated roadway space to bicyclists. It encourages predictable movements by bicyclists and motorists. Care must be taken to properly design bike lanes to meet or exceed minimum standards, particularly for operating space, and to properly restrict cars from parking in them. Substandard bike lanes may not attract riders and may not be comfortable for casual or less confident bicyclists. It is also important that bike lane treatments be carried through intersections to provide continuity and guidance for bicyclists where the potential for conflicts is highest. Where bike lanes must end due to space constrictions or must transition to another facility type, advance warning and/or wayfinding signage for an alternative route should be provided to instruct bicyclists how to proceed. Bike lanes generally need to be swept periodically to keep debris from accumulating in them, especially if they are located adjacent to a curb.

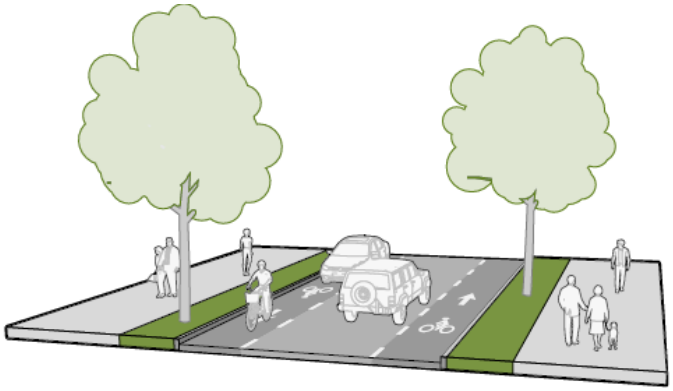
Neighborhood Greenways

Neighborhood Greenways (also referred to as bicycle boulevards or neighborhood bikeways) are low-speed, low-volume shared roadways that create a high comfort walking and bicycling environment. Traffic calming or diversion treatments are often used to promote speed and volume reduction but they are not required. Shared lane markings and wayfinding signs are often used to help bicyclists navigate the route and raise awareness that bicyclists are present. Neighborhood greenways also feature enhanced treatments at arterial/collector street intersections to provide safe and convenient crossings. Maintenance requirements are generally low because cars share the same space, although traffic calming elements would add maintenance needs if they are installed.

Advisory Bike Lane / Shoulder

On narrow streets where the pavement width is not adequate for two vehicular travel lanes and bike lanes, advisory bike lanes / shoulder may be considered, if the traffic volume is relatively low (generally less than 3,000 ADT) and posted speeds are less than 25 mph. On these streets, a preferred 6’ wide (4’ minimum) bike lanes may be marked with dashed white line. The middle, two-way travel lane width varies from a maximum of 18’ to minimum of 10’. This configuration requires passing vehicles to give way to one another, resulting in low operating speeds. In general, travel lane centerlines are not marked

on the roadway except in situations where opposing traffic needs to be separated, such as at curves, on hills or at-grade crossings. Advisory lanes are best implemented on streets with infrequent intersections.



Furthermore, when cars traveling in opposite directions approach one another, they might need to yield to bicyclists in the advisory lane in order to have enough space for both vehicles to pass in the travel lane. This is expected behavior and limits vehicular travel speed.

It should be noted that advisory lanes are generally not intended to be used by pedestrians. When pedestrians are anticipated to use the facility, they must meet accessibility guidelines. Furthermore, since advisory lanes are a new treatment, jurisdictions looking to install advisory lanes must submit a Request to Experiment to the FHWA. This is further detailed in Section 1A.10 of the MUTCD.

Figure 14 shows the Full-Build Bicycle Network for Bloomington. The network was developed based on the bicycle facility section guide provided in Appendix E, local land-use context of the street as well as the future multimodal needs of Bloomington. When implementing the Full-Build network, availability of funds, ROW, or other factors will dictate the type of facilities that can be installed. This may necessitate installing different facilities than shown in Figure 14. For example, as part of city's repaving project, a conventional bike lane may be added on a street which shows higher level facility in Figure 14. In the future, when funds become available the facility shown in the figure could be added.

Figure 15 shows the High-Priority Bike Network for Bloomington. Given the limited resources, the projects highlighted in the map and listed in Table 8, are anticipated to achieve the biggest impact to advance multimodal transportation in the City. These projects form the basic east-west and north-south bicycle network that will be the backbone of the multimodal transportation system in the City. The projects are categorized in two phases. Phase 1 projects are anticipated to be implemented in the near-term, i.e. years 1 to 3 after the adoption of this Plan. Phase 2 projects are mid-term projects which are anticipated to be implemented in years 3-6. Appendix E provides the bicycle facility section guidance used to identify the Full-Build Bike Network.

Rails with Trails

The Full-Build Bicycle Network includes potential Rails with Trails projects. These are trail projects which may be built within the existing railroad right-of-way. They can provide high-quality and low-stress bicycle and pedestrian facility similar to the B-Line. The projects will require consultation with railroad owners as well as a feasibility study to ensure that adequate right-of-way is available to accommodate required setbacks and other design parameters.

Figure 14. Full-Build Bicycle Network

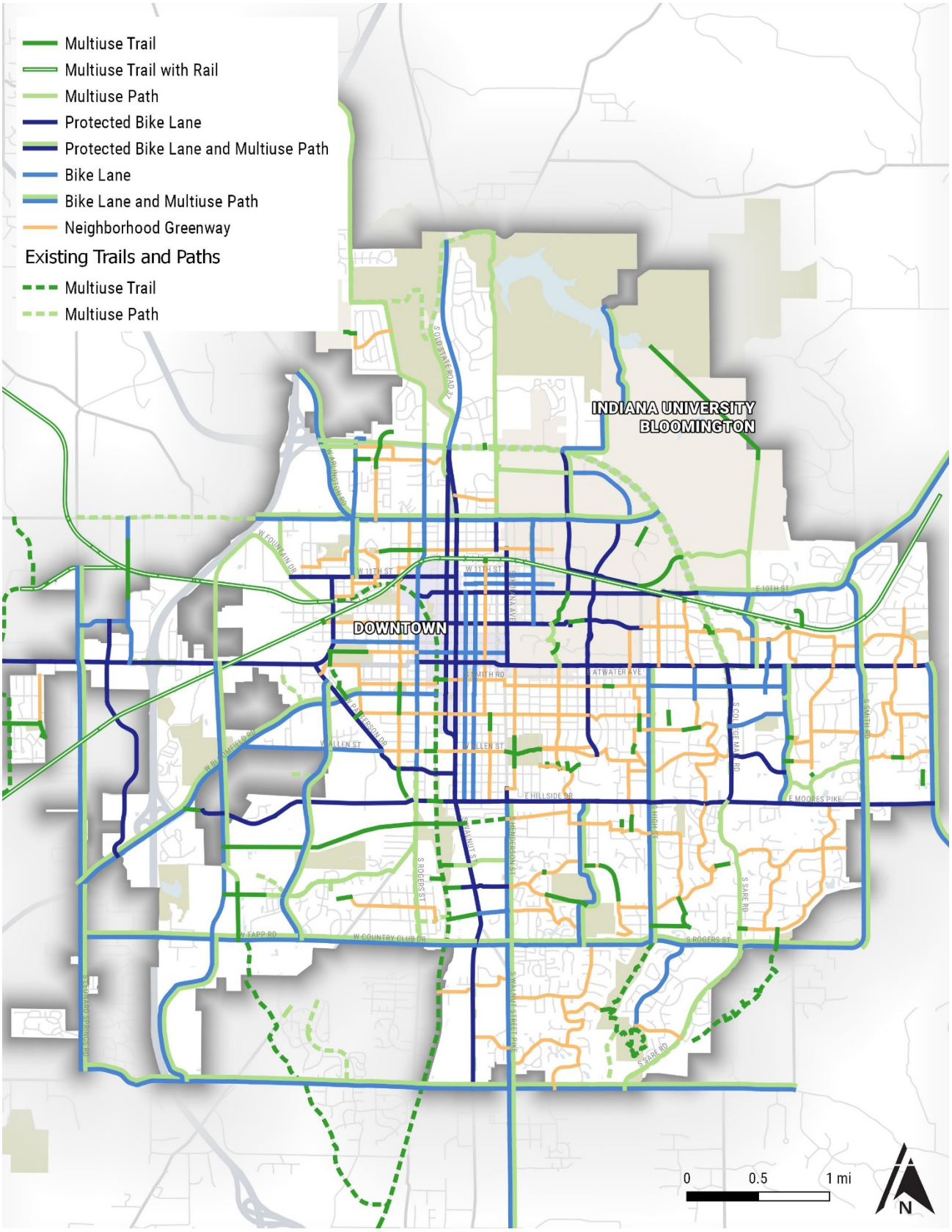
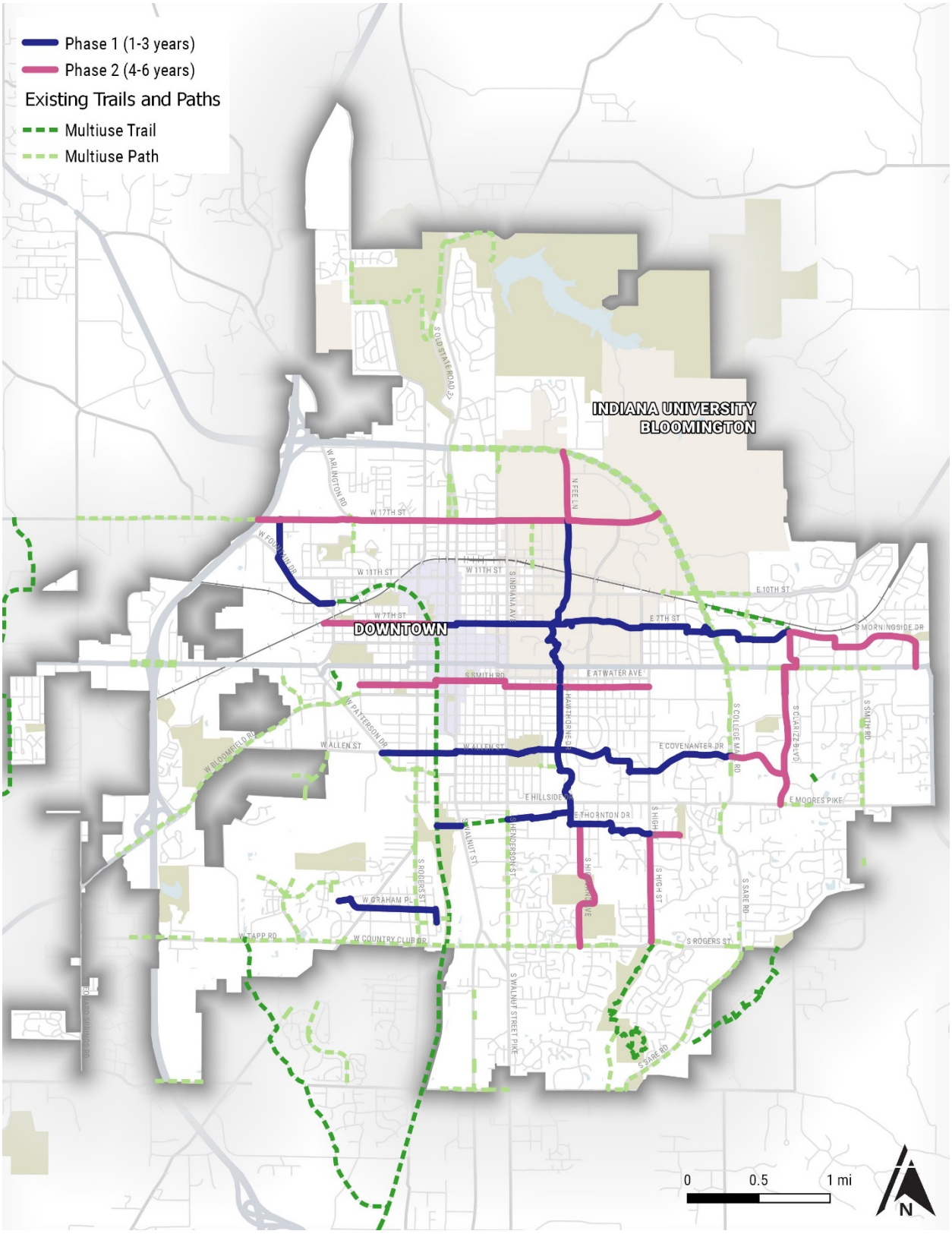


Figure 15. High-Priority Bicycle Network



3.4 Pedestrian Network Assessment

Sidewalks are an integral part of any multimodal transportation network. As they provide direct access to homes, businesses and institutions, the availability and quality of sidewalk is important to maintain the quality of life for all residents.

Based on the available sidewalk inventory data and assigning various weights (on a 100-scale) to population and employment density, demographic data, proportion of population with disability, physical in-activity, intersection density, and presence of schools, park, and transit, different areas in the City have been prioritized for sidewalk installation, as shown in Figure 16. Based on these priority areas, the City may update the sidewalk inventory to verify sidewalk gaps, assess sidewalk quality, and ADA compliance. This data, combined with the sidewalk policy mentioned below, will help identify specific streets that need sidewalk improvements.

Historically, some residential neighborhoods in Bloomington were not built with sidewalk on every street or on every side of the street. Installing sidewalks on all streets owned by the City would be a huge burden on public finances and be cost prohibitive. However, to fill in existing sidewalk gaps, Bloomington could follow these decision-making guidelines:

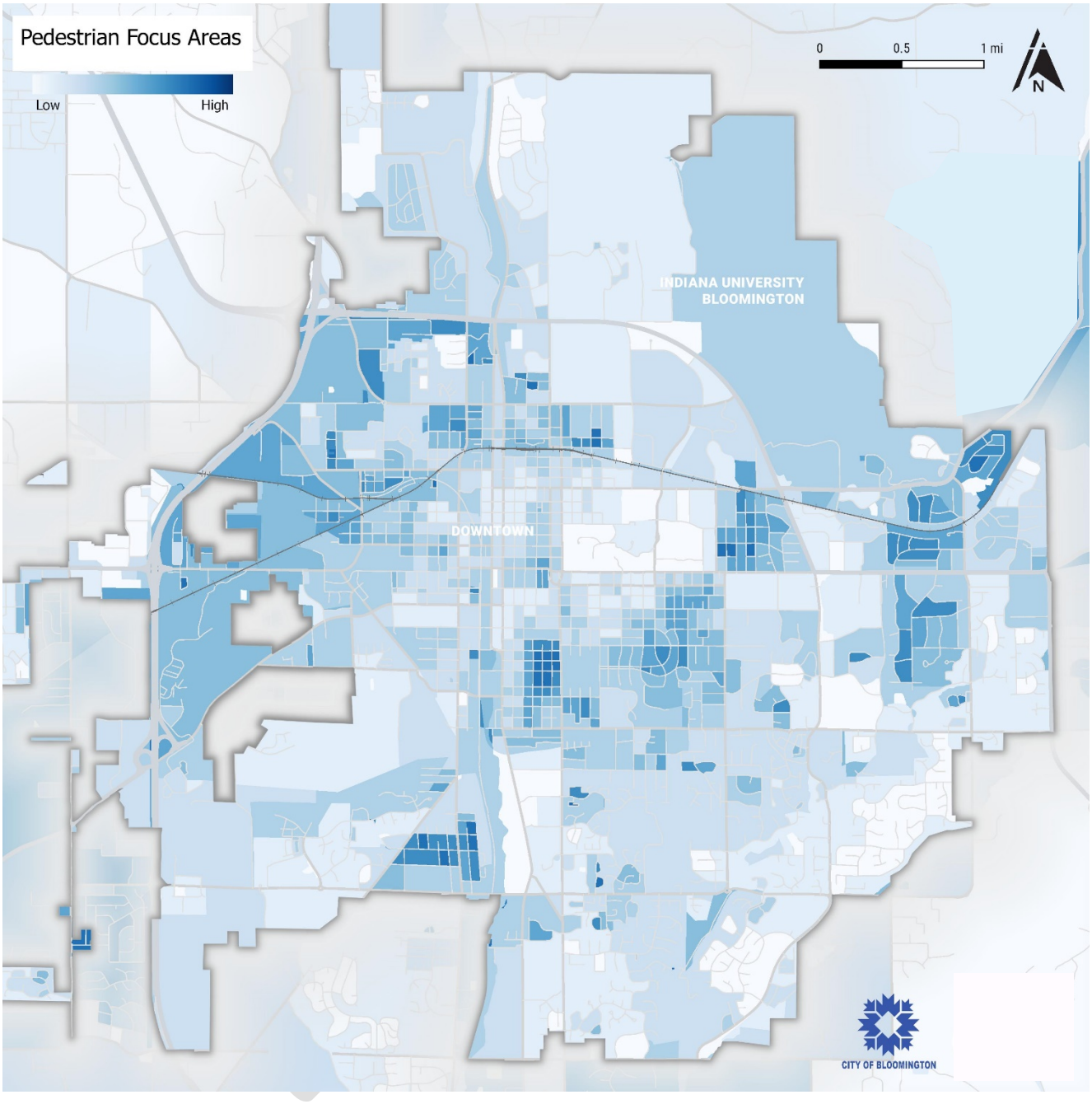
- All Connector streets (Neighborhood, Suburban), General Urban, Main Streets and Shared Streets should have sidewalks on both sides of the street.
- Neighborhood Residential Streets can have sidewalks on either one side or neither side based on the following basic guidelines:
    - **Sidewalk on one side:** Any Neighborhood Residential Street with less than 1,500 ADT and 20 mph posted speed limit. Streets that are located near community amenities should have a sidewalk on at least one side of the street, regardless of ADT or speed.
    - **No Sidewalk:** Any Neighborhood Residential Streets with less than 500 ADT and 15 mph operational vehicular speed, except when community amenities like schools, libraries, grocery stores, health facilities, parks, etc., are present. It may be appropriate to identify some of these streets as Neighborhood Greenways when they form part of the larger bicycle network. It is important to weight the benefits of investing in sidewalks vs Neighborhood Greenways vs other multimodal infrastructure on case-by-case basis.

Access to Transit

Several pedestrian priority areas represent the confluence of streets with higher traffic volumes and speeds, significant commercial activity, transit service routes, and high frequencies of crashes involving pedestrians. The pedestrian priority areas along transit corridors highlight the importance of land use in designing active transportation networks. When improving infrastructure in pedestrian priority areas along transit corridors, the following factors should be considered:

- Large, expansive parking lots and frequent driveways reduce comfort and safety for pedestrians walking along the street. Efforts should be made to consolidate driveways and/or provide public access through parking lots to improve pedestrian environment in the City.
- Prioritize sidewalk connections to bus stops and provide safe mid-block crossings where needed. In situations where mid-block crosswalks aren't warranted, nearby intersections should be upgraded to include high-visibility crosswalks and ADA compliant pedestrian signals.

Figure 16. Pedestrian Priority Areas



- Permissive turn phases at signalized intersection with high pedestrian volumes create dangerous conflict points at the intersection. While pedestrians in crosswalk legally have the right of way, motorists often aren't looking for pedestrians and sometimes complete the turns at high speeds to avoid collisions with oncoming vehicles. Higher numbers of motorists and pedestrians can be expected along transit corridors. Reducing curb radii to manage turning speeds, installing signage to restrict right turns on red or require yielding to pedestrians, and adjusting traffic signal timings can improve safety for motorists, transit users, and pedestrians at such intersections.

Uncontrolled Crossings

National resources can guide the City of Bloomington in developing its own guidelines for pedestrian crossings. The FHWA published its *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* in 2017 which included the guidance for pedestrian crash countermeasures based on roadway configurations, speed limits, and average daily traffic volumes, as shown in Table 7.

Tree Coverage and Vegetation

Tree coverage and vegetation are important functional and aesthetic characteristics for pedestrian-friendly streets. They provide a variety of environmental and health benefits, and when placed strategically, can help encourage walking.

The environmental benefits of integrating trees and vegetation in City's streetscape includes better management of stormwater runoff and potentially an increase in air quality. Stormwater runoff collects pollutants from hard surfaces which can be directed to bio-swells created in the landscape buffer between the roadways and sidewalks. These bio-swells act as natural filters before the stormwater is directed to downstream watersheds.

Tree coverage and vegetation also provides health benefits by reducing air pollution which can lead to negative health impacts, such as worsening asthma symptoms.[27]. Adding trees along pedestrian routes can help decrease the exposure to the sun, which prevents skin cancer.

Trees and vegetation should be placed such that they maintain 4' minimum clear path on the sidewalk. Some considerations for tree placement include:

- Avoiding trees and vegetation from acting as obstructions: When trees are placed between on-street parking stalls and sidewalk, adequate distance should be provided from the curb to ensure that the trees and vegetation are not damaged by car doors while opening. Additionally, when trees and vegetation are located at intersections, they should be outside the intersection sight triangle so as not to decrease the visibility of vehicular, pedestrian and bicycle traffic.

- Increasing shade coverage: In order to invest strategically in trees and vegetation, the City can place plants in areas with high pedestrian foot traffic and locations where pedestrians tend to wait to either cross the street or to board a bus. This might be at major pedestrian intersections and bus stops that do not currently have a bus shelter. Walking routes that connect pedestrians to bus stops, or community amenities such as schools, parks, libraries and grocery stores, are also important areas for trees and vegetation.

[27] Centers for Disease Control and Prevention. *Particle Pollution.* Available at: https://www.cdc.gov/air/particulate_matter.html

Roadway Configuration	Speed Limit								
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
2 lanes*	❶ 2 3 4 5 6	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6 7	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼
3 lanes with raised median*	❶ 2 3 4 5	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ 3 4 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 4 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼
3 lanes w/o raised median†	❶ 2 3 4 5 6 7	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6 7	❶ ❸ 5 6 ❼	❶ ❸ 5 6 ❼	❶ ❸ 4 5 6 7	❶ ❸ 5 6 ❼	❶ ❸ 5 6 ❼
4+ lanes with raised median‡	❶ ❸ 5	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼
4+ lanes w/o raised median‡	❶ ❸ 5 6 7 8	❶ ❸ 5 ❻ 7 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ 7 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8

*One lane in each direction †One lane in each direction with two-way left-turn lane ‡Two or more lanes in each direction

Given the set of conditions in a cell,

❶ Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.

\# Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1 High-visibility crosswalk markings, parking restriction on crosswalk approach, adequate nighttime lighting levels
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Pedestrian Hybrid Beacon
8 Road Diet

This table was developed using information from: Zegeer, C. V., Stewart, J. R., Huang, H. H., Lagerwey, P. A., Feaganes, J., & Campbell, B. J. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines (No. FHWA-HRT-04-100); Manual on Uniform Traffic Control Devices, 2009 Edition, Chapter 4F. Pedestrian Hybrid Beacons; the Crash Modification Factors (CMF) Clearinghouse website (http://www.cmfclearinghouse.org/); and the Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE) website (http://www.pedbikesafe.org/PEDSAFE/).

Table 7. *Uncontrolled Crossing Counter Measures*
(Source: FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations)

3.4 Key Treatments and Supporting Guidance

In addition to the new street typologies and bicycle facilities, there are several key treatments and supporting operational and/or policy guidance that are likely to support the goals of the Plan and enhance the experience of the traveling public. These treatments and guidance are discussed below.

Circulation Changes: Two-Way Street Restoration

Streets were originally designed for two-way circulation. However, with increases in automobile traffic and under the premise that reducing travel time and delay equates to increased economic activity, many streets in downtown settings were converted to one-way couplets in the mid-20th century. This led to higher speed roadways in high density commercial and surrounding residential areas, which do not typically support community goals and aspirations. Converting one-way streets to two-way would help Bloomington meet its Comprehensive Plan goals, such as "establishing downtown as the center of the community." When developing a design for a one-way to two-way conversion, additional care should be given toan intersection treatments and traffic signal coordination.[28]

[28] PedBikeSafe. Pedestrian Safety Guide and Countermeasure Selection System. One-way/Two-way Street Conversions. Accessed 05/03/2018. http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=23.

One-Way to Two-Way Restoration of Dr. Martin Luther King Blvd in South Bend, IN

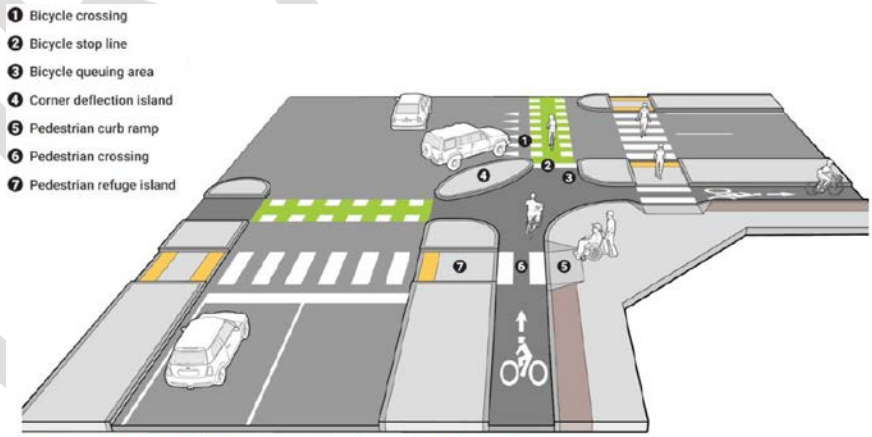
Modern Roundabouts

Designed to improve safety, encourage slow speeds, and to facilitate motor vehicles yielding to pedestrians and bicyclists, the modern roundabout eliminates left turns and angle collisions, improves traffic flow, and provides gateway treatment opportunities.[29]

Modern roundabouts present both significant safety improvements and design challenges. When considering the installation of a modern roundabout, pedestrian and bicycling volumes, traffic volume and speed, and available ROW should be carefully reviewed. In addition to possible impacts to the pedestrian and bicycle networks' connectivity, roundabouts can generate unique challenges for pedestrians with visibility impairments and disabilities.[30] Engineers and planners should consider how roadway all users will interact with and use a modern roundabout. This plan recognizes the benefits of the roundabout and recommends it at few intersections.

Protected Intersections

Along corridors that are popular for bicycle use or at high crash locations, the installation of protected intersections may be beneficial. These intersections are designed to increase visibility of the bicyclist from the driving public and slow the turning speed of the vehicles. The key elements of a protected intersections are show in the image below. While a full protected intersection will be most beneficial with two intersecting protected bike lanes, key features of the protected intersection, like advanced stop, corner deflection island, etc., can also be incorporated at intersections with available space in order to improve the safety of bicyclists.



Elements of a Protected Bike Lane Intersection, Source: Toole Design Group

[29] PedBikeSafe. Pedestrian Safety Guide and Countermeasure Selection System. Roundabouts. Accessed 05/03/2018. http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=25.

[30] PedBikeSafe. Pedestrian Safety Guide and Countermeasure Selection System. Roundabouts. Accessed 05/03/2018. http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=25.

Loading Zones

Loading zones, particularly in the downtown area, are necessary to support freight for local businesses and a thriving economy. While loading zones can potentially pose obstacles for motorists and bicyclists when they are not designed properly, simple guidance can help roadway users navigate these areas.

When possible, loading zones should be relocated to alleyways to avoid conflicts between delivery trucks, motorists, bicyclists, and pedestrians. If that is not feasible, the City should consider restricting the loading times to off-peak hours only in order to reduce conflict during the peak hours of the day. Furthermore, the City should assess the opportunity to consolidate the number of loading zones to help reduce points of conflict between the different roadway users. If on-street parking is present near a loading zone, the on-street parking can be restricted during the times of day in which loading zones are routinely used; the extra space from the on-street parking can then be used for the delivery trucks.

If on-street parking is not available and more space is required for the loading zone, then additional space can be acquired through reducing the number of travel lanes, reducing the sidewalk width, or permitting roadway users to travel in a center turn lane when deliveries are being unloaded[31].

Alleyways

Alleyways are an asset that can be used to support connectivity, retail, and sustainability. Alleyways can often play an important role for bicycle and pedestrians by reducing out-of-direction travel and providing a low-traffic route. Although services such as trash, recycling services, and delivery trucks often use alleyways, a proper management of alleyways can help reduce these conflicts.

Alleyway preservation and improvement can also benefit local retail by providing affordable commercial space for local businesses. They can be improved to create a sense of place by activating the area with the help of public art such as murals, pedestrian-scale lighting, increased economic activity geared towards the alleyways, and wayfinding signage. Additionally, implementing green alley design elements can help manage stormwater runoff and reduce heat. Green alley design elements include elements such as permeable pavers and pavement, high-albedo pavement, and dark-sky compliant light fixtures. The City of Bloomington should preserve and invest in alleyways to help maintain and improve bicycle and pedestrian connectivity and increase retail access.

Traffic Calming

Traffic calming aims to slow the speed or volume of motorists to desired levels. The greatest benefit of traffic calming is increased safety and comfort for all users on and crossing the street. Compared with conventionally designed streets, traffic calmed streets typically have fewer collisions and fewer traffic-related injuries and fatalities. These safety benefits are the result of slower speeds for motorists that result in greater driver awareness, shorter stopping distances, and less kinetic energy during a collision.

Traffic calming for speed reduction can be achieved by installing horizontal or vertical elements. The section below discusses handful of the elements that are effective at reducing vehicular speed. The list is not exhaustive and are intended for information only. The City should identify a procedure to determine when traffic calming treatment is appropriate, identify speed and volume criteria, and adopt installation guidance for various treatments.

[31] Federal Highway Administration. 2015. Separated Bike Lane Planning and Design Guide. Available at: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/

Horizontal Elements

Horizontal traffic calming elements reduce vehicular speeds by narrowing lanes or adding horizontal curves on the street. These elements require more careful maneuvering around fixed objects and when passing bicyclists or oncoming automobile traffic. Some treatments may slow traffic by creating a yield situation where one driver must wait to pass, also known as yield streets. Example of horizontal elements include chicanes and traffic circles.

Chicanes on West 3rd Street

Chicanes are curb bulbs are placed mid-block to narrow the roadway and add horizontal curves on the vehicular travel path, forcing motorists to reduce speed. These can also be placed mid-block directly opposite each other to physically and visually reduce the width of the roadway forcing motorists to reduce speed. Chicanes may require the removal of on-street parking in spot locations. Chicanes can be designed to minimize impacts to stormwater drainage. The size of chicanes will vary based on the targeted design speed and roadway width.

Traffic circles are used at uncontrolled or yield-control intersections to reduce speeds of motorists, which reduces collisions and improves bicycle and pedestrian safety. They can also encourage regional traffic to stay on larger streets, reducing the impact of cut through traffic on neighborhoods. Traffic circles are appropriate for consideration on local streets not designated as emergency response routes. Neighborhood traffic circles should be considered at local street intersections to prioritize the through movement of bicyclists without enabling an increase in motorist speeds.

Vertical Elements

Vertical traffic calming treatments compel motorists to slow their speed to traverse the treatment and are found to be the most effective speed reduction treatments. They are typically used where other types of traffic controls are less frequent, such as along Neighborhood Greenways where stop signs may have been removed to ease bicyclist travel. Examples of vertical traffic calming elements include speed humps and raised marked crosswalks.

A speed hump is a roadway design feature that consists of raised pavement extending across the full width of the street. They are engineered for speeds less than 30 MPH and are not typically used on the neighborhood connector or higher street typology. Designs can be compatible with snow plowing equipment and speed humps are typically designed with a rise of 6 inches above the roadway.

Raised marked crosswalks (also known as speed tables) employ vertical deflection that reduces speeds of motorists upon approach of the crosswalk. Raised intersections are created by raising the roadway to the same level as the sidewalk, essentially creating a speed table across an entire intersection. This treatment enhances the pedestrian experience (particularly for people with mobility and visual impairments), reduces speeds of motorists, and increases visibility between motorists and pedestrians. Raised intersections are most appropriate in areas of high pedestrian demand. The impact on stormwater design should be carefully considered when designing raised crosswalks or intersection.

4. Recommended Projects

Working towards the vision set forward by the 2018 Comprehensive Plan will require safety and mobility focused projects that build upon and improve the existing multimodal transportation network. This Plan includes a number of recommended projects to do just that. This chapter details recommended projects, which are divided into new roadway connections and multimodal projects.

The projects were developed based on input received from the public, elected officials, and City staff during the project process; responses from the WikiMap survey; analysis of the existing network including average daily traffic volumes and crashes; and relevant recommendations from past studies.

4.1 New Roadway Connections

Table 8 lists 67 new roadway connection based on the planning approach and design elements highlighted in Chapter 3. Figure 17 shows the location of proposed new connections, along with multimodal projects.

Note that the connections represent a long-term vision for the City to maintain access to new undeveloped areas, as well as provide guidance to establish a street grid when large areas redevelop. They are conceptual alignments only and require detailed discussion with stakeholders to determine final alignment that meets the intent of the connection. The new connections also support multimodal transportation by reducing out-of-direction travel and helping to distribute vehicular traffic so that it is not concentrated on few existing roadways. While many of the identified new street connections may take years to build, they are critical to consider as Bloomington reinvents, redevelops, and reinvests in the community.

Table 8. *Draft New Roadway Connection Projects List*

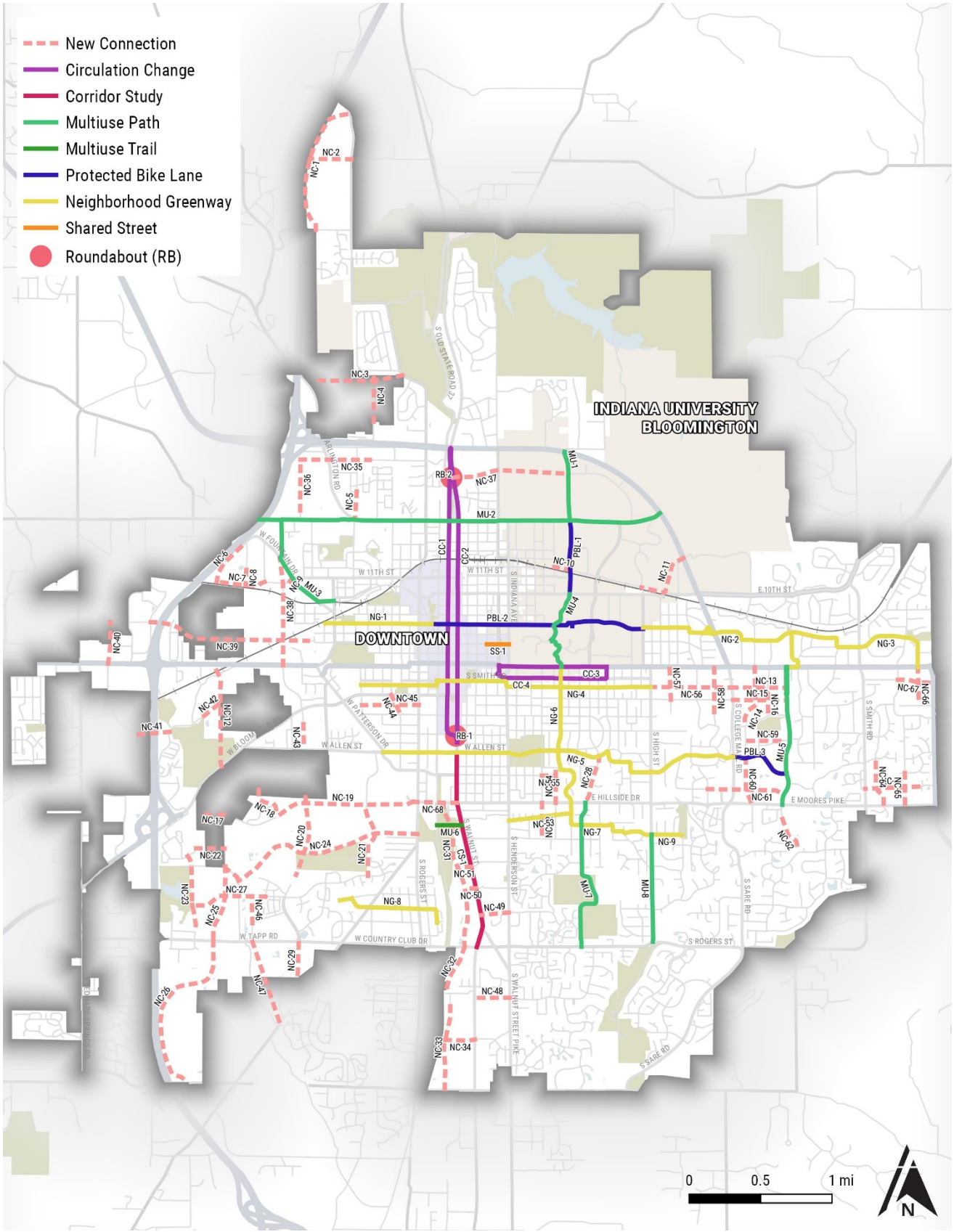
Project ID	Category	Project Name	Description
NC-1	New Connection	N Prow Road extension	Extend N. Prow Rd from W Acuff Road to Old Kinser Pike to improve access in the area
NC-2	New Connection	W Bayles Road extension	Extend W Bayles Rd from N Kinser Pike to new N Prow Rd extension to improve access in the area
NC-3	New Connection	Briarcliff Dr neighborhood connector extension	Provide new connection from N Prow Rd to N Kinser Drive, south of W Briarcliff Dr, to improve connectivity
NC-4	New Connection	Stonelake Dr neighborhood residential extension	Provide connection from N Stonelake Dr to W Briarcliff Dr
NC-5	New Connection	Arlington Valley neighborhood connector	Extend N Monroe Street to W 17th Street to improve future connectivity
NC-6	New Connection	Fountain Dr neighborhood residential extension	Extend W Fountain Dr (Vernal Pike) to connect neighborhood to N Johnson Ave. Requires new railroad crossing.
NC-7	New Connection	Gray St neighborhood residential extension	Extend W Gray St to intersect with the extended W Fountain Dr and N Johnson Ave
NC-8	New Connection	Nuckles Rd neighborhood residential extension	N Nuckles Rd to W Gray St extension to improve local connection
NC-9	New Connection	11th St neighborhood residential extension	Improve W 11th St connection to W Gray St

Project ID	Category	Project Name	Description
NC-10	New Connection	Law Ln urban connector extension	Connect E Law Ln to N Walnut Grove Ave to improve EW connection north of the railroad
NC-11	New Connection	Range Rd, 10th St and Law Ln connector	Provide new connection from E Law Ln to E 10th St and SR 46 at N. Range Rd.
NC-12	New Connection	Weimer Road North Extension	Extend S Weimer Road from W Bloomfield Rd to W 3rd St. Requires new railroad crossing.
NC-13	New Connection	Northern College Mall east-west connector	Provide new street grid as part of any future redevelopment of the area.
NC-14	New Connection	Pete Ellis Dr Extension thru College Mall	Provide new street grid as part of any future redevelopment of the area.
NC-15	New Connection	2nd Street Extension thru College Mall	Provide new street grid as part of any future redevelopment of the area.
NC-16	New Connection	Kingston Dr S Extension thru College Mall	Provide new street grid as part of any future redevelopment of the area.
NC-17	New Connection	Sudbury Dr extension to Bloomfield Rd	Extend W Sudbury Dr from S Weimer Road to W Bloomfield Road
NC-18	New Connection	Beech Tree Lane extension	Extend S. Beech Tree Lane to Sudbury Farm to improve NS connection
NC-19	New Connection	Hillside Drive Extension	Extend Hillside Drive from S Walnut Stret to W Sudbury Dr as a new major EW connection
NC-20	New Connection	Adams St Extension	Provide new road from S Adams St to W Countryside Ln to improve NS connectivity
NC-21	New Connection	Strong Dr neighborhood connector extension	Provide new road from S Strong Road to W Countryside Lane to improve local connectivity
NC-22	New Connection	Oakdale Dr east-west local extension	Provide connection from S Oakdale Dr to S Weimer Rd to improve local circulation
NC-23	New Connection	Oakdale Dr north-south extension	Provide connection from S Oakdale Dr to Tapp Road
NC-24	New Connection	New Road north of RCA Community Park	Provide new connection from Rogers St to Weimer Road to improve EW local connectivity
NC-25	New Connection	Realign S Weimer Road	Realign Weimer Road from Wapehani Road to Tapp Road
NC-26	New Connection	New Frontage Road Connection	Provide connection from W Fullerton Pike to Tapp Road
NC-27	New Connection	Countryside Lane Extension	Extend Countryside Lane from S Adams St to Oakdale Dr NS extension
NC-28	New Connection	Highland Ave Multiuse Path Connection	Provide bike/ped connection from S Tarzian Ln to S Highland Ave
NC-29	New Connection	Adams St South Extension	Extend S Adams Street from W Tapp Rd to S Rockport Rd
NC-30	New Connection	Wickens St neighborhood residential extension	Provide new connection from S Rockport Rd to S Wickens St
NC-31	New Connection	Clear Creek northern neighborhood connector	Activate Stockyard Park by providing connection from E Hillside Dr to W Country Club Dr
NC-32	New Connection	Clear Creek southern neighborhood connector	Preserve the public use of Clear Creek by providing connection from W Country Club Dr to S Pinewood Ln
NC-33	New Connection	Pinewood Ln extension	Preserve the public use of Clear Creek by providing connection from W Gordon Pike to S Pinewood Ln

Project ID	Category	Project Name	Description
NC-34	New Connection	Burks Dr neighborhood residential extension	Improve access to Clear Creek by connecting to E Burks Dr
NC-35	New Connection	W Cascade Ave extension	Extend W Casacade Ave from current terminus to W Arlington Rd and new extension of N Arlington Park Dr
NC-36	New Connection	N Arlington Park Dr	Extend N Arlington Park Dr from current terminus to W Cascade Rd extension to improve access in the area
NC-37	New Connection	N Jordan Ave extension	Extend Jordan Ave from N Fee Ln and N Dunn St to N College Ave and N Old State Rd 37
NC-38	New Connection	S Landmark Ave extension	Extend S Landmark Ave from W 3rd St to N Crescent Rd to improve NS connection and alternate to N Adams St railroad crossing
NC-39	New Connection	W Kirkwood Ave extension	Extend W Kirkwood Ave over railroad and I-69 to Alexander Dr to provide alternate multimodal crossing of I-69
NC-40	New Connection	Liberty Dr extension	Extend Liberty Drive from W 3rd St to Jonathan Dr to improve access in the area
NC-41	New Connection	S Basswood Dr crossing	Provide new I-69 crossing from S Basswood Dr to Liberty Dr
NC-42	New Connection	S Basswood Dr extension	Extend from current terminus to Weimer Road North extension
NC-43	New Connection	S Landmark Ave extension	Extend S Landmark Ave from current southern terminus to W Allen St
NC-44	New Connection	S Maple St extension	Connect S Maple St from current southern terminus to S Fairview St
NC-45	New Connection	Bloomington Hospital connector	Create a new east-west connection from S Walker St to S Rogers St between E 1st St and E 2nd St
NC-46	New Connection	S Kegg Rd extension (north)	Extend S Kegg Rd from W Sunstone Dr to Countryside Lane extension
NC-47	New Connection	S Kegg Rd extension (south)	Extend S Kegg Rd from current southern terminus to S Rockport Rd
NC-48	New Connection	E Allendale Dr extension	Extend E Allendale Dr from S Walnut St Pike to S Walnut St
NC-49	New Connection	E Graham Pl extension	Extend E Graham Pl from S Henderson St to S Walnut St
NC-50	New Connection	E South Ct extension	Extend E South Ct from S Walnut St to Clear Creek northern neighborhood connector
NC-51	New Connection	N North St extension	Extend N North St from S Walnut St to Clear Creek northern neighborhood connector
NC-52	New Connection	S Woodlawn Ave	Extend S Woodlawn Ave from E Hillside Dr to E Miller Dr
NC-53	New Connection	E Thornton Dr connection	Connect E Thornton Dr between S Park Ave and S Huntington Dr
NC-54	New Connection	S Huntington Dr extension	Extend S Huntington Dr from E Hillside Dr to S Weatherson Ln
NC-55	New Connection	E Grimes Ln extension	Extend E Grimes Ln from S Woodlawn Ave to S Huntington Dr extension
NC-56	New Connection	E Hunter Ave extension	Extend E Hunter Ave from S High St to S College Mall Rd

Project ID	Category	Project Name	Description
NC-57	New Connection	S Roosevelt St connection	Connect S Roosevelt St from E 2nd St to E 3rd St
NC-58	New Connection	S Wynnwood Ln extension	Extend S Wynwood Ln from current northern terminus
NC-59	New Connection	E Goodnight Way extension	Extend E Goodnight Way from roundabout at E Stratum Way to S Auto Mall Rd
NC-60	New Connection	S Auto Mall Rd extension	Extend S Auto Mall Rd from E Covenanter Dr to E Moores Pike and S Woodruff Ln
NC-61	New Connection	S Pickwick Pl extension	Extend S Pickwick Pl from S Winfield Rd to S Clarizz Blvd
NC-62	New Connection	S Arbors Ln extension	Extend S Arbors Ln from current southern terminus to E Winston St
NC-63	New Connection	E Bridgestone Dr extension	Extend E Bridgestone Dr from current western terminus to S Smith Rd
NC-64	New Connection	S Romans Ct extension	Extend S Romans Ct from current southern terminus to E Moores Pike and S Wingfield Dr
NC-65	New Connection	S Graywell Dr extension	Extend S Graywell Dr from E Cricket Knl to E Moores Pike
NC-66	New Connection	S Morningside Dr extension	Extend S Morningside Dr from E 3rd St to E Janet Dr
NC-67	New Connection	E Hagan St extension	Extend E Hagan St from S Park Ridge Rd to Knightdale Rd

Figure 17. Draft Recommended Projects



4.2 Multimodal Projects

The Plan recommends several multimodal projects that support the transportation goals of the 2018 Comprehensive Plan. The projects include the facilities identified in the High-Priority Bicycle Network. The projects are categorized as follows:

- Circulation Changes
- Multiuse Path
- Sidewalk
- Neighborhood Greenway
- Protected Bike Lane
- Shared Street
- Roundabout
- Transit Assessment
- Trail

Table 9 shows proposed multimodal projects based on the planning approach and key treatments previously discussed in the Plan. It does not include location specific sidewalk project due to lack of available data. Figure 18 shows the location of proposed multimodal projects.

Table 9. *Draft Multimodal Project List*

Project ID	Category	Project Name	Description
CC-1	Circulation Change	College Ave two-way restoration	Restore College Ave to two-way circulation from S Walnut St to State Rd 46 as a Complete Street
CC-2	Circulation Change	Walnut St two-way restoration	Restore Walnut St to two-way circulation from S College Ave / E Dodds St to State Rd 46 as a Complete Street
CC-3	Circulation Change	W 3rd St two-way restoration	Restore W 3rd St to a two-way road from Dunn St to S Mitchell St as a Complete Street.
CC-4	Circulation Change	Atwater St two-way restoration	Restore Atwater St to a two-way road from Dunn St to S Mitchell St to by-pass IU traffic on 3rd St
CC-5	Circulation Change	Citywide circulation change study	Conduct traffic circulation study to assess other existing one-way street network and identify opportunities to restoring it to two-way circulation
MU-1	Multiuse Path	N Fee Lane Multiuse Path and Protected Bike Lanes	Provide a multi-use path and protected bike lanes on N Fee Ln from E 17th St to Hwy 45/46
MU-2	Multiuse Path	17th St Multiuse Path and Bike Lanes	Provide a multi-use path and bike lanes on 17th St from Hwy 37/45 to Hwy 45/46
MU-3	Multiuse Path	N Crescent Rd/W Fountain Dr Multi-Use Path	Provide a multi-use path on N Crescent Rd and W Fountain Dr from W 17th St to the B-Line Trail
MU-4	Multiuse Path	Indiana University Multiuse Path	Provide a multi-use path from E 10th St to E 3rd St between S Woodlawn Ave and S Jordan Ave
MU-5	Multiuse Path	S Clarizz Blvd Multiuse Path and Bike Lanes	Provide a multi-use path and bike lane on S Clarizz Blvd from E Moores Pike to E 3rd St
MU-6	Multiuse Trail	E Thornton Dr Multiuse Trail Extension	Extend the E Thornton Dr multi-use trail from S Walnut St to the B-Line Trail
MU-7	Multiuse Path	S Highland Ave Multiuse Path and Bike Lanes	Provide a multi-use path and bike lanes on S Highland Ave from S Winslow Ct to E Hillside Dr
MU-8	Multiuse Path	S High St Multiuse Path and Bike Lanes	Provide a multi-use path and bike lanes on S High St from S Winslow Ct to E Arden Dr

Project ID	Category	Project Name	Description
NG-1	Neighborhood Greenway	W 7th St Neighborhood Greenway	Provide a neighborhood greenway on W 7th St from N Ritter St to S Rogers St and a protected bike lane on W 7th St from S Rogers St to the B-Line Trail
NG-2	Neighborhood Greenway	E 7th St Neighborhood Greenway	Provide a neighborhood greenway on E 7th St and E Longview Ave from S Union St to N Glenwood Ave
NG-3	Neighborhood Greenway	E Morningside Dr Neighborhood Greenway	Provide a neighborhood greenway on Glenwood Ave, E Longview Ave and E Morningside Dr from S Clarizz Blvd to E 3rd St and S Morningside Dr extension
NG-4	Neighborhood Greenway	E Hunter Ave Neighborhood Greenway	Provide a neighborhood greenway on W Howe St, Smith Ave, and E Hunter Ave from S Walker St to S High St
NG-5	Neighborhood Greenway	Allen St/E Covenanter Dr Neighborhood Greenway	Provide a neighborhood greenway on Allen St, E Southdowns Dr, E Ruby Ln, E Marilyn Dr, and E Covenanter Dr from W Patterson Dr to S College Mall Rd
NG-6	Neighborhood Greenway	S Hawthorne Dr Neighborhood Greenway	Provide a neighborhood greenway on S Hawthorn Dr and S Weatherstone Ln from E 3rd St to E Thornton Dr
NG-7	Neighborhood Greenway	E Thornton Dr Neighborhood Greenway	Provide a neighborhood greenway on E Thornton Dr and Arden Dr from S Henderson St to S High St
NG-8	Neighborhood Greenway	W Graham Dr Neighborhood Greenway	Provide a neighborhood greenway on W Graham Dr and S Bryan St from W Kissell Dr to the B-Line Trail
NG-9	Neighborhood Greenway	E Arden Dr Neighborhood Greenway	Provide a neighborhood greenway on E Arden Dr from S High St to S Montclair Ave
PBL-1	Protected Bike Lane	N Fee Lane Protected Bike Lanes	Provide protected bike lanes on N Fee Ln from E 10th St to E 17th St
PBL-2	Protected Bike Lane	7th St Protected Bike Lanes	Provide protected bike lanes on 7th St from the B-Line Trail to S Union St
PBL-3	Protected Bike Lane	E Covenenter Dr Protected Bike Lanes	Provide protected bike lanes on E Covenanter Dr from S College Mall Rd to S Clarizz Blvd
RB-1	Roundabout	South College and Walnut Roundabout	Single-Lane Roundabout at S College Ave, S Walnut St at E Dodd St intersection
RB-2	Roundabout	North College and Walnut Roundabout	Single-Lane Roundabout at N College Ave, N Walnut St and N Old State Rd 37 intersection
SD-1	Sidewalk	Pedestrian Priority Area Study	Conduct detail sidewalk and ADA inventory of key pedestrian priority areas to identify and cost projects.
SS-1	Shared Street	Kirkwood Avenue Shared Street	Convert Kirkwood Avenue to shared street from Indiana Ave to Grant St
TN-1	Transit Assessment	Comprehensive Transit Service Study	Conduct detail assessment of existing transit service and identify additional funding and service improvements.
TR-1	Trail	Rails with Trails Assessment	Coordinate with CSX railroad and conduct survey of proposed rails with trails alignment

5. Implementation Strategy

The recommended projects identified in Chapter 4 will require additional steps and supporting policies to implement. This chapter includes anticipated next steps, proposed City policy changes, and priority projects for the City to build.

5.1 Overall Approaches

Some of the highlights from this Plan, along with associated next steps that the City and its partners should take, are listed below.

Plan for Future Street Connections

This Plan recommends numerous new street connections that are designed to preserve public right-of-way (ROW) and establish a transportation network to help meet City goals. Many of the new connections are anticipated to occur as part of future development projects. As developers submit site development applications to the City, the City should ensure that the new connections, with adequate ROW, are included. Additionally, the City may pursue some of the new connections itself as funds become available.

Restore Two-Way Circulation

Before one-way streets are restored to two-way, a detailed traffic operational study and in-depth engagement with the community will be needed. Due to high demand for all modes on these streets, the study should identify the role of each street and its modal priorities.

Redesign Kirkwood Avenue as Shared Street with Focus on Pedestrians

In order to implement the shared street recommendation on Kirkwood Avenue, from Indiana Avenue to Walnut Street, city may pursue a design charrette to address comments and ideas of business owners, residents, Indiana University and other stakeholders. The design charrette helps to confirm the vision for the street, identify design elements that are important to stakeholders and secure broad public support.

Extend B-Line and Invest in High-Priority Bicycle Network

In order to extend the B-Line Trail to the northwest area of the City, city would need to allocate funds to conduct survey of the proposed alignment to conduct a feasibility study, design and construction. City should also allocate funds in the annual budget cycle to systematically implement the projects identified in the High-Priority Bicycle Network.

5.2 Policy Recommendations

The Plan identifies following policies that should be adopted by the City to advance the transportation goals of the 2018 Comprehensive Plan.

Develop a new Complete Streets Policy and Design Guidebook

Since the current Complete Streets Policy was adopted by the MPO in 2009, several key initiatives have been completed by the City and MPO, like the 2018 Comprehensive Plan, Transform 2040, and others. Bloomington's own Complete Streets policy would complement the MPO's but specifically address the City's needs. This Plan lays the groundwork for developing a new Complete Streets policy and an associated Design Guidebook by identifying street typologies and preferred dimensions of various street design elements. These guidelines should be developed further by collaborating closely with various departments within the City as well as with Monroe County and/or the MPO.

Develop a Street Grid Network Policy

As highlighted in this Plan, establishing a street grid network has several benefits. The Plan recommends several new connections that would lay the groundwork for future grid network. However, other opportunities may arise in the future, beyond the new connections shown in this Plan. As such, Bloomington should establish a policy to develop a street grid network of 350'-500' street spacing, where possible. If desired, the policy could be part of the Complete Streets policy.

Develop a Curbside Management Policy

The demand for curbside space will continue to increase in the future as new modes and services become popular in the transportation sector. These demands must be managed properly to ensure that conflicts are managed and that adequate space is given to the people and uses that need it most. This Plan recommends adopting a curbside management policy that addresses loading zones, transportation network companies (TNCs) like Uber and Lyft, bike share and other shared vehicles, on-street parking, protected bike lanes, and other uses.

Develop a Traffic Calming Policy

As Bloomington grows, cut-through traffic through residential neighborhoods will likely to be a recurring issue for many residents. The City should identify an appropriate process to receive traffic calming requests from residents and/or City Council. This could include determining the procedure to address the request, identifying the technical thresholds when traffic calming treatments may be appropriate, and providing installation guidelines. Establishing such a policy will help streamline the requests, set expectations, and provide adequate transparency to all residents.

Update Unified Development Code

The Plan includes new street typologies and bicycle facility types. As the City pursues next update of the Unified Development Code, various elements of the code should be coordinated with the intent and parameters of the new street typologies and bicycle facility types of this plan.