WALK BIKE BLOOMSBURG

connectivity master plan

April 2020

The Town of Bloomsburg

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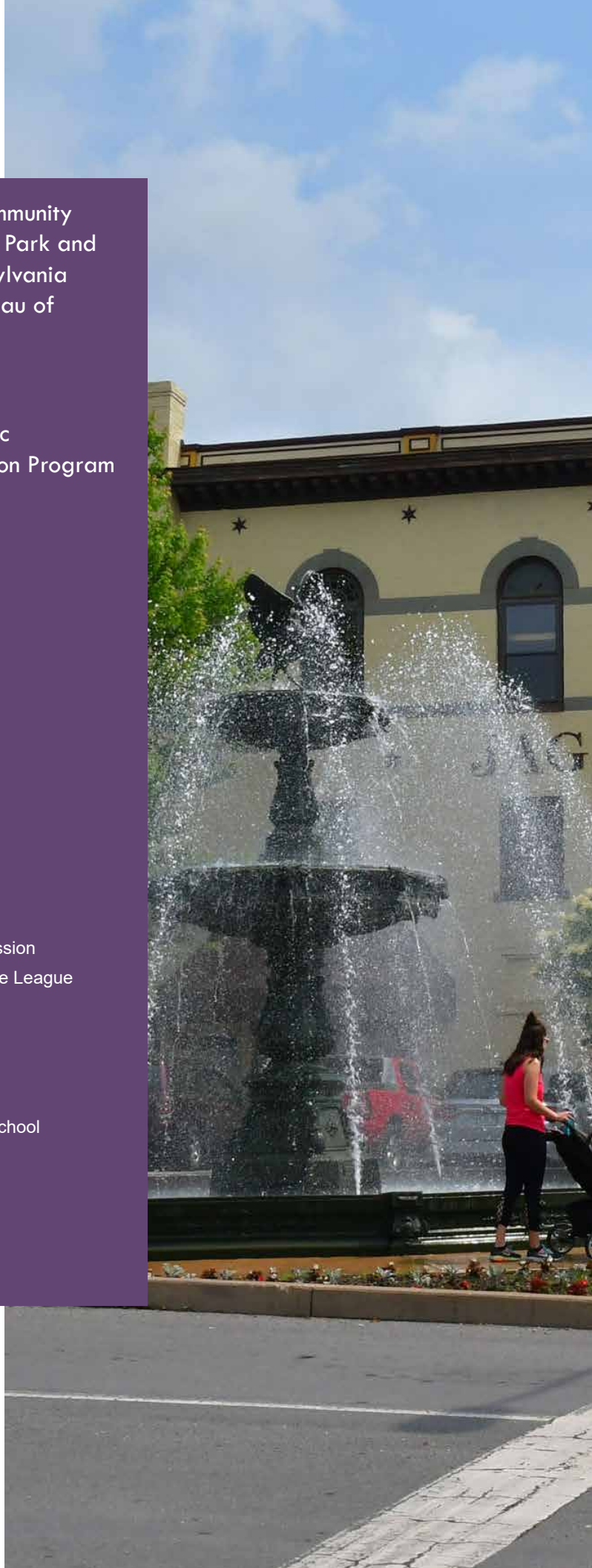
Bloomsburg Town Council

- Mayor William Kreisher
- Toni Bell
- Bonnie Crawford
- James Garman
- James Huber
- Justin Hummel
- Vince DeMelfi

Walk / Bike Committee

- William Kreisher – Mayor Town of Bloomsburg
- Toni Bell – Council Member Town of Bloomsburg
- Lisa Dooley - Town Manager
- Charles Fritz - Director of Governmental Services, Town Staff
- John Thomas – Bloomsburg University CGA & Town Planning Commission
- Matt Beagle – Board Member Geisinger/ President of Bloomsburg Little League
- Chris Young - Columbia County Commissioner
- Fred Gaffney - Chamber of Commerce & Downtown Bloomsburg Inc.
- Chuck Wagner - President of Town Park Improvement Association
- Lauren Strausser - Resident, Bloomsburg Shade Tree Commission
- Nick Troychock - Resident, Cross Country Coach Bloomsburg High School
- Rich Kisner - Columbia County Communities Strategies Group
- Andrew Barton – Resident, owner LIVIC civil engineering
- Matt Hess – Community Alliance Group
- Corey Ellison – Executive Director, Susquehanna Greenway



SC 19018

SIMONE LANDSCAPE ARCHITECTURE COLLINS

Gibson-Thomas ENGINEERING


HOUSING
KIC HLER
Fulton Bank

Introduction

Inventory & Analysis

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Recommendations

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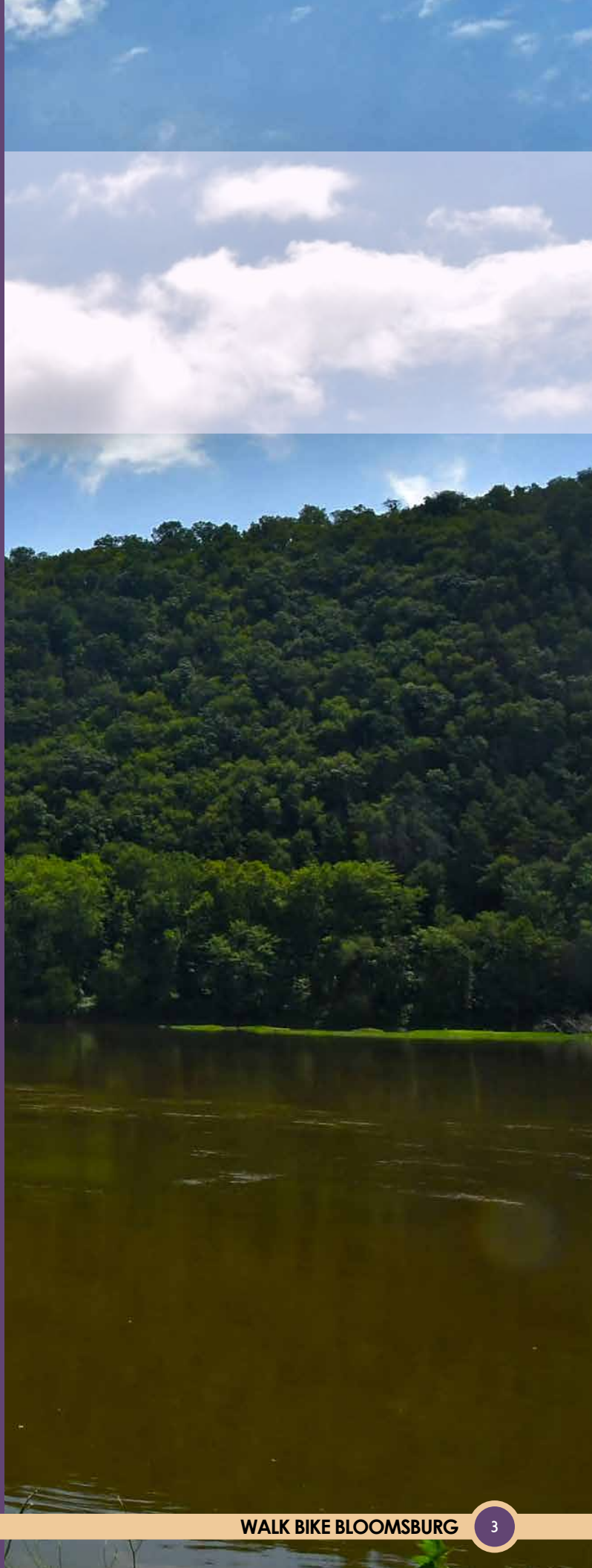
Introduction 1

Plan Goal

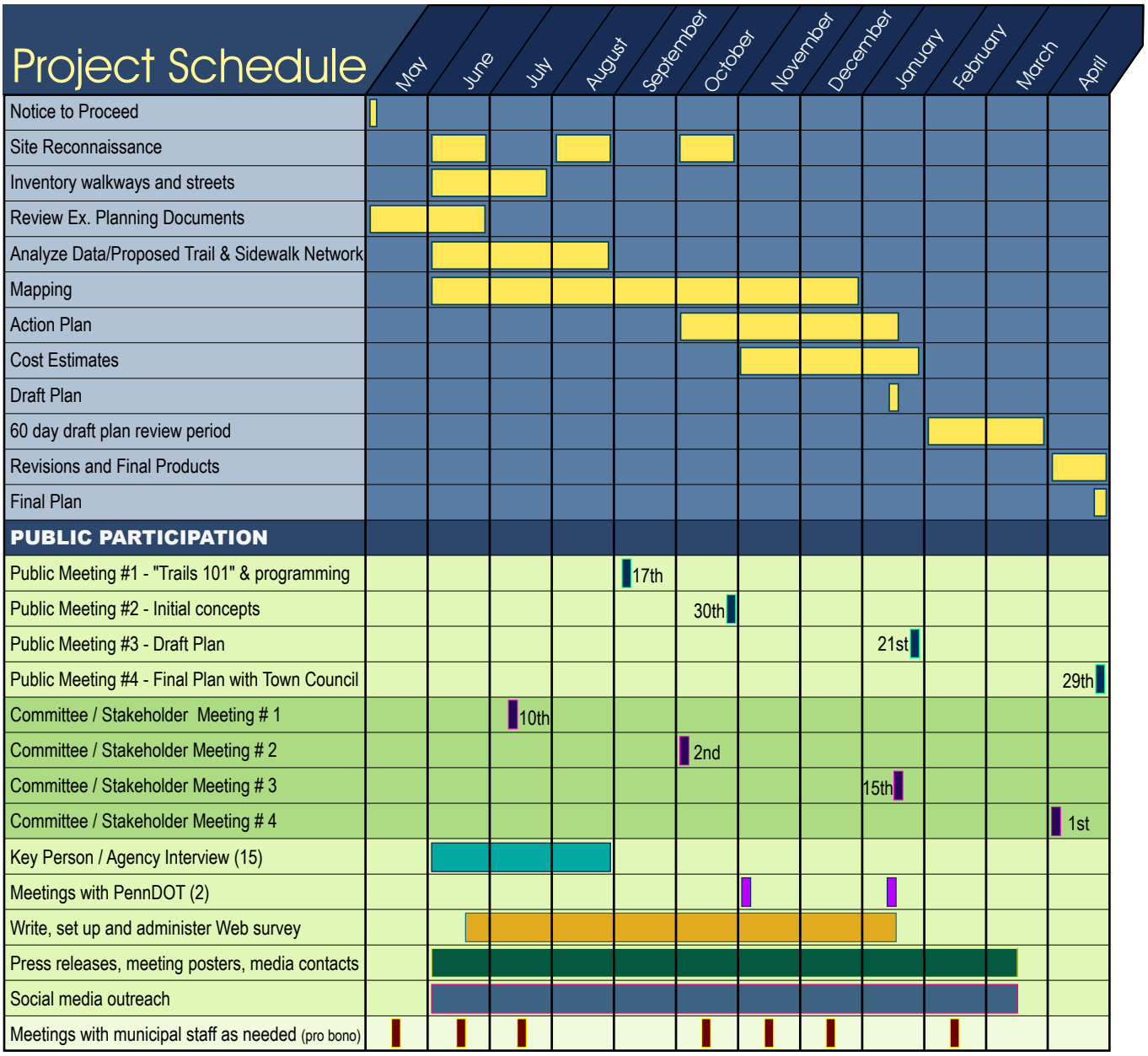
Maintain and enhance a **healthy, connected,** and **prosperous** Bloomsburg through safety improvements to pedestrian, vehicular, and bicycle infrastructure.

Plan Objectives

- Provide information on the value of connected, walkable, and bikeable communities that create health and economic benefits and an enhanced quality of life.
- Identify high priority connectivity improvements.
- Educate the public and key stakeholders about the opportunities for, and priorities regarding improved walkability and connectivity in Bloomsburg.
- Support decision-making by Town officials and staff on moving high-priority projects forward.
- Develop a planning document that can support efforts to attract and secure funding for the future implementation of proposed improvements.



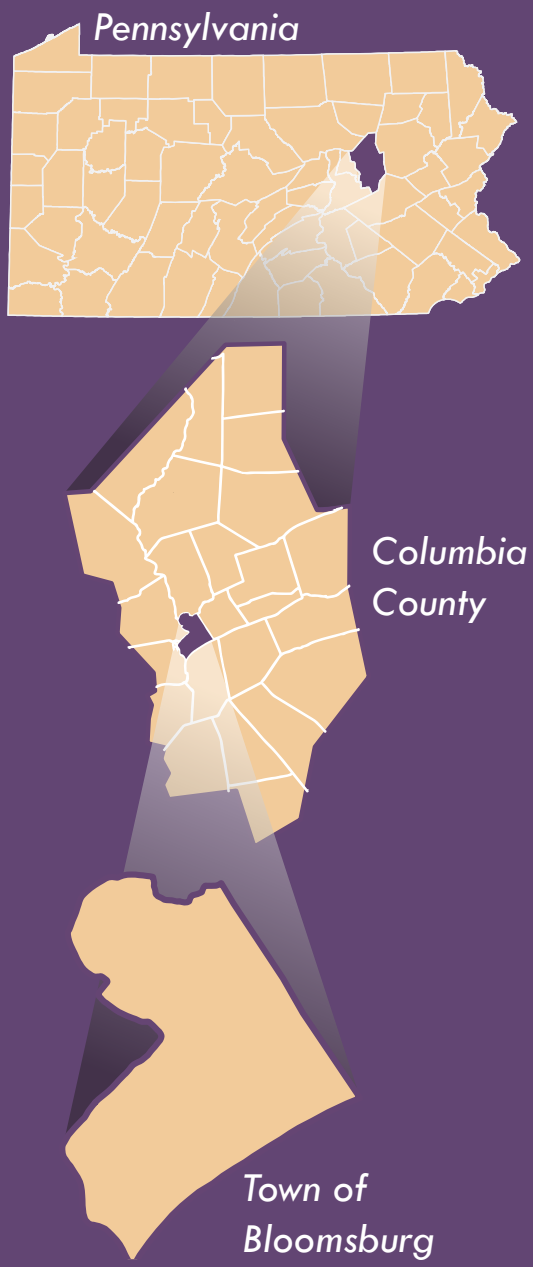
Project Schedule

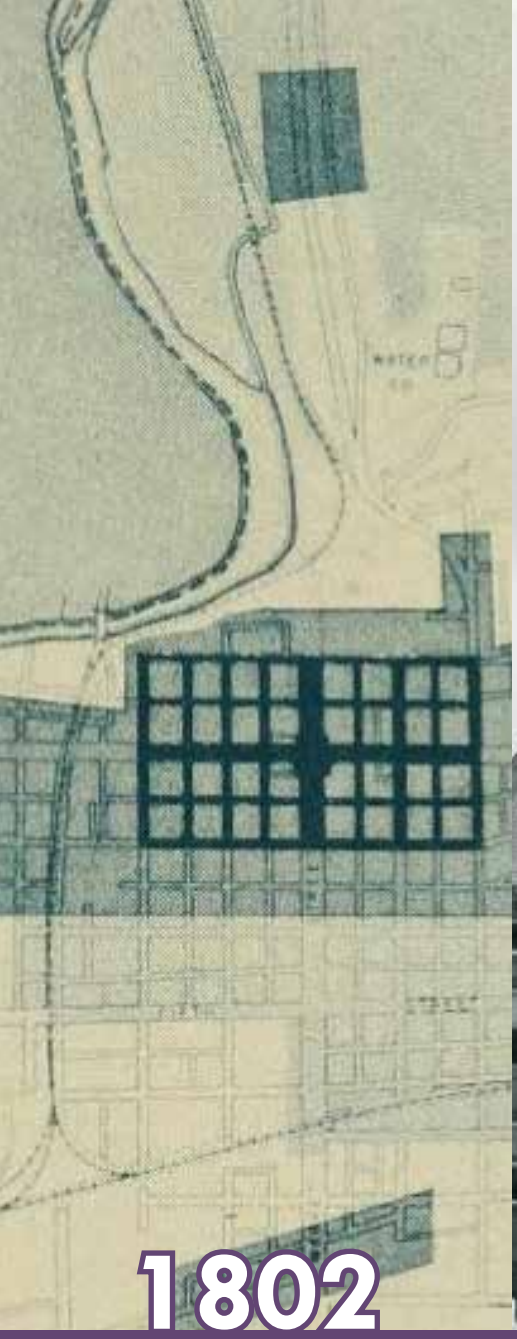


Town Context

As the county seat for Columbia County, Bloomsburg is home to over 14,000 residents. Considered the only incorporated “town” in Pennsylvania, Bloomsburg is located along Route 11 and near two exits of Interstate 80.

Bloomsburg is home to Bloomsburg University, a vibrant downtown community of small businesses, a municipal airport, Town Park with many acres of recreational activities, and the Bloomsburg Fair - one of the largest and longest running fairs in the country.



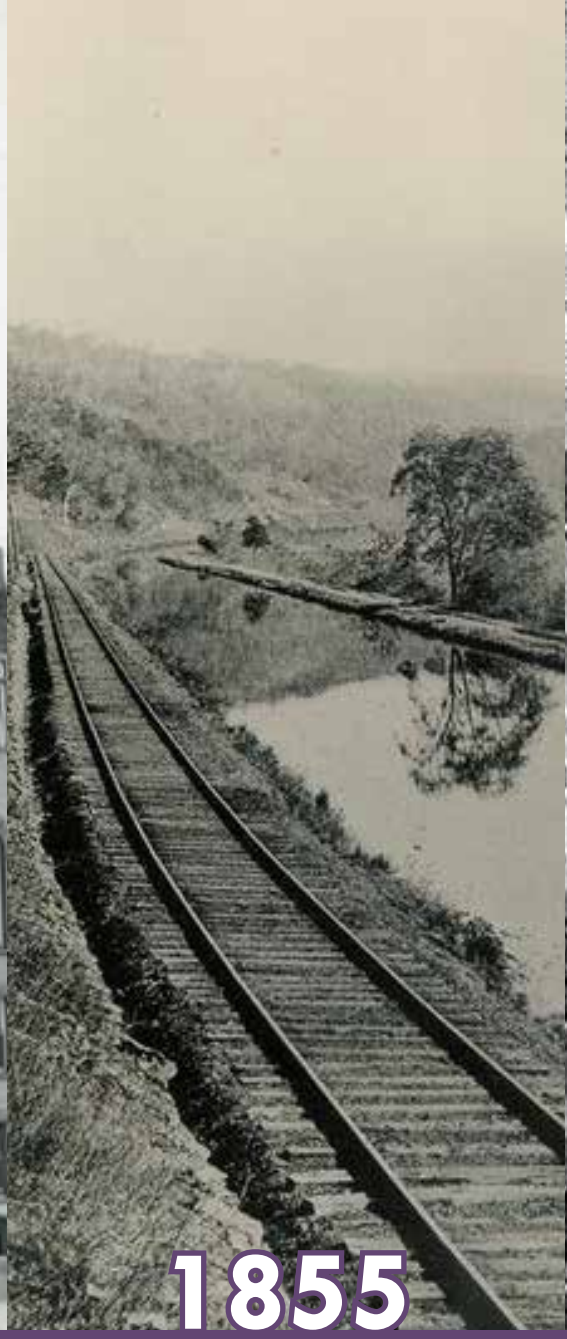


1802

Town Grid Surveyed

1845

Bloomsburg Becomes County Seat



1855

North Branch Canal Opens

Town History

A branch of the Lenni Lenape Native Americans known as the Susquehannocks, are the first known inhabitants of the land along the Susquehanna River.

The territory that is now Columbia County was opened to European settlers in 1754. Early settlers moved to the area from Connecticut and were of Irish, Dutch, Welsh, German, and Scotch-Irish descent.

In the late 19th century, Connecticut and Pennsylvania had a territorial dispute over the land that would become Columbia County.

During this period, several settlers purchased land within the area that is now the Town of Bloomsburg. An early settler, James McClure built a log cabin close to the banks of the Susquehanna, In 1781, a wooden stockade was constructed around the McClure homestead to protect settlers from native American attacks. The modern-day Fort McClure Boulevard which parallels the Susquehanna River, is named for this.

In 1802, John Adam Eyer purchased 92.5 acres that would become the initial land for the Town of Bloomsburg. This land was surveyed to lay out town lots for development. The original Town of

1866

Bloomsburg University Founded

1870

'Town' of Bloomsburg Incorporated

1927

Town Park Established

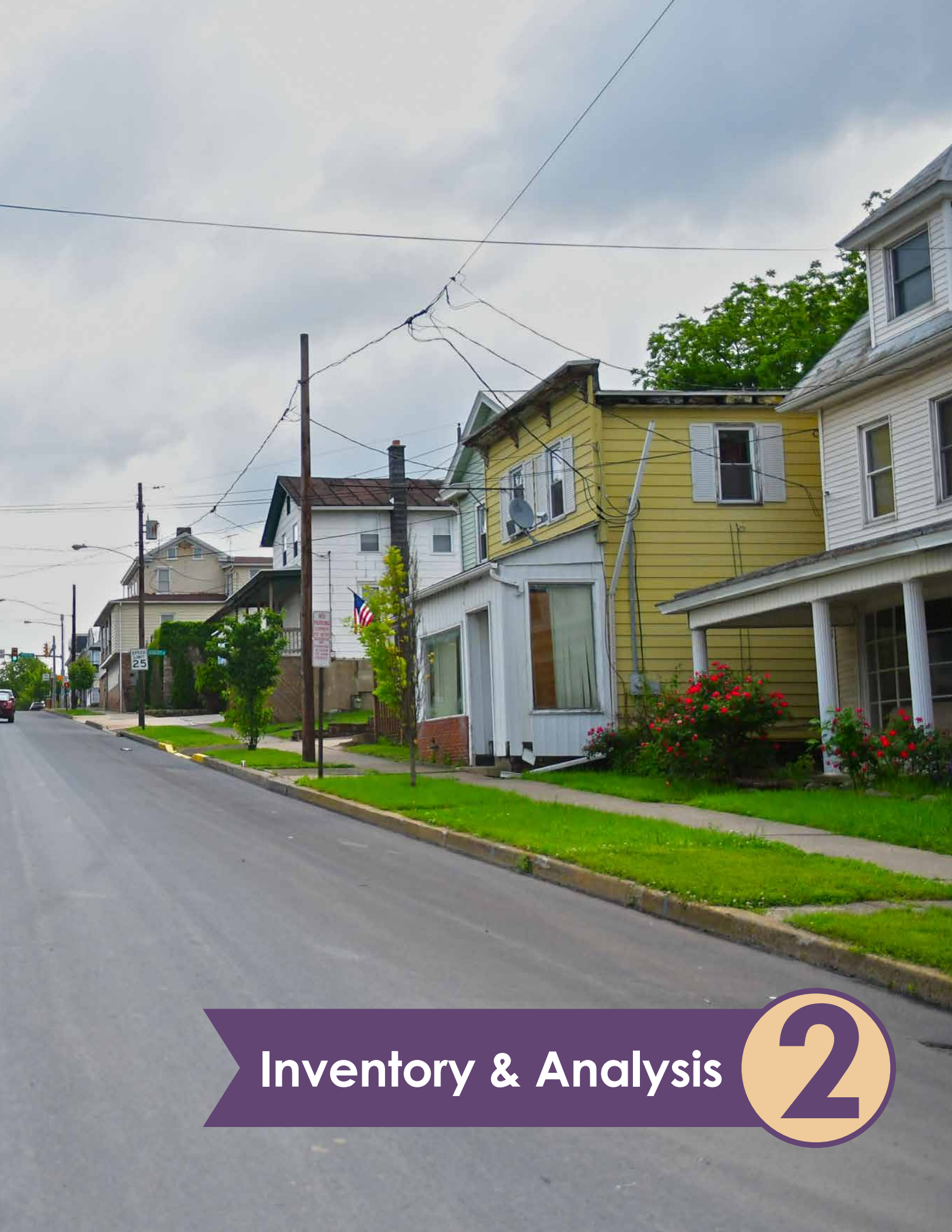
Bloomsburg was bounded by First Street in the north, Iron Street in the east, Third Street in the south, and West Street in the west. The town was laid out with numbered streets going east and west and the named streets running north and south.

The North Branch Canal which stretched from Wilkes-Barre and Scranton to Athens near the New York, opened in 1855. The canal stimulated the economy and brought an influx of new residents.

Columbia County was formed in 1813, and Bloomsburg was named the county seat in 1845. Bloomsburg's county courthouse officially opened in 1847. Bloomsburg was recognized officially as a Town in 1870. Bloomsburg University has played a significant role in the town's development. Founded in 1866, the school - now University, has grown considerably from the time of its establishment. Bloomsburg University currently enrolls 8,000 full- and part-time students.

The 43-acre Bloomsburg Town Park was established in 1927 in an effort to reinvest in the riverfront. The central downtown Bloomsburg commercial district remains an a vital part of the Bloomsburg community.


FOR RENT



Inventory & Analysis 2

Data Collection & Methodology

The data of this report was compiled from various sources, including the Town of Bloomsburg, Columbia County, STRAVA (Heat Maps), previous planning studies, and field reconnaissance data obtained by the consultant.

Field maps and planning documents were created using Geographic Information System (GIS) base mapping. This information was combined with base aerial photography, Municipal boundaries, roadways, sidewalks, parcels, and other identifying land use features. Simone Collins Landscape Architecture coordinated a thorough public involvement process that included the public and the Walk Bike Bloomsburg Committee.

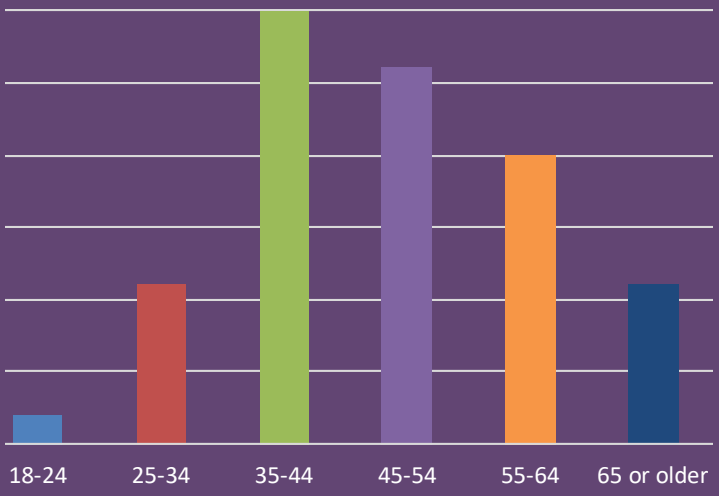
Public Participation

Meetings with the public, Town staff and the Walk Bike Bloomsburg Committee were held throughout the planning process. Both groups helped identify connectivity needs and concerns, and provided feedback on proposed solutions. Meetings informed the public on project progress and provided an opportunity for feedback and discussion. Attendance lists and meeting minutes can be found in the appendix of this study.

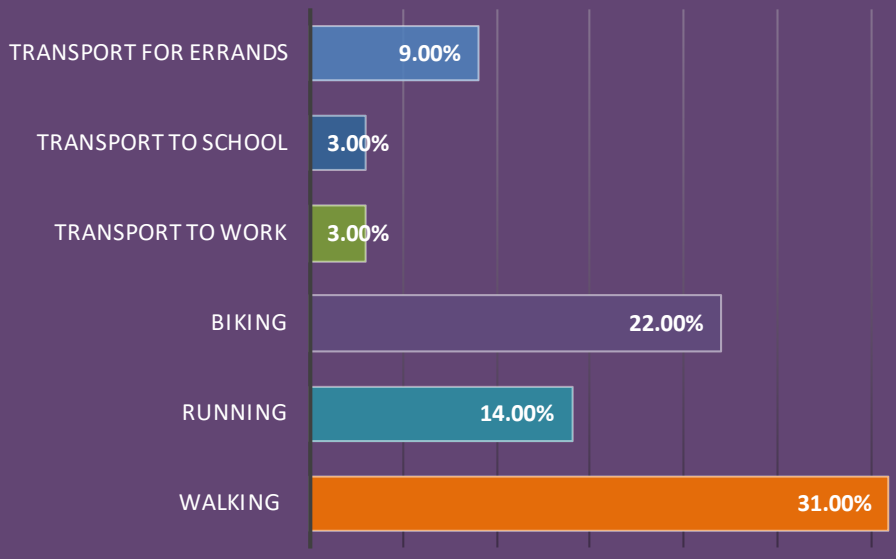
Public Opinion Survey

A 33-question public opinion survey was created by the consultant team to gather important information from the residents of Bloomsburg. This survey gathered important background data from respondents, as well as thoughts and perceptions related to the current state of walkability and bikeability in Bloomsburg. During the Walk Bike Bloomsburg process a total of 82 responses were received.

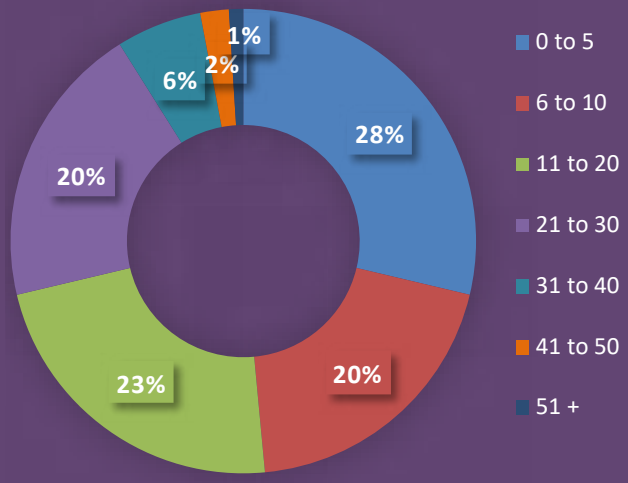
What is your age?



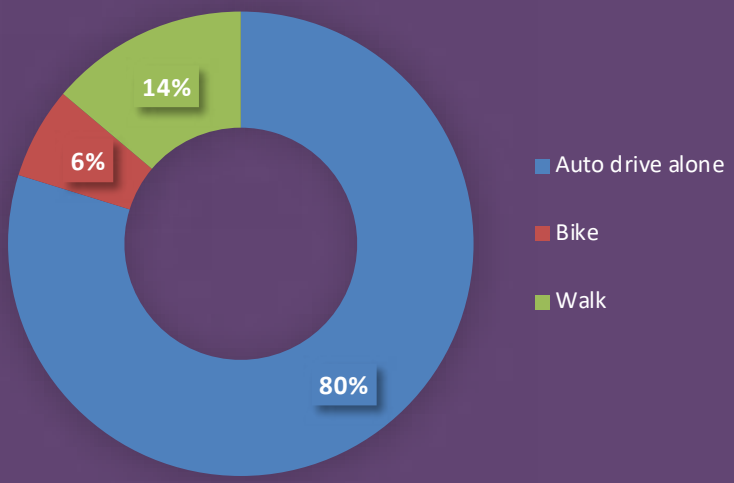
For which activities do you use the sidewalks and trails of Bloomsburg?



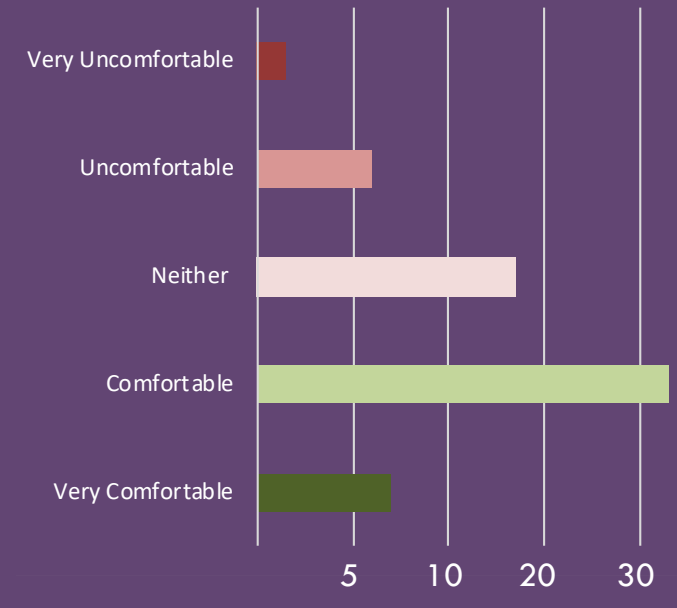
How many years have you lived at your current address?



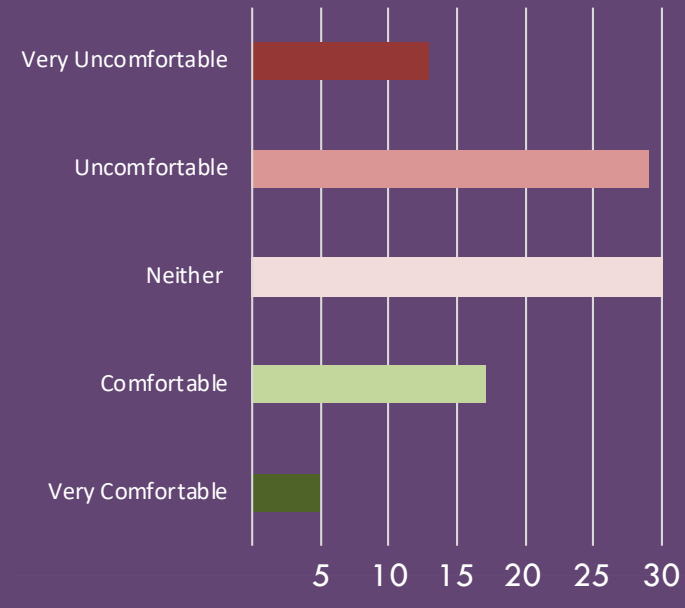
What is your main mode of transportation?



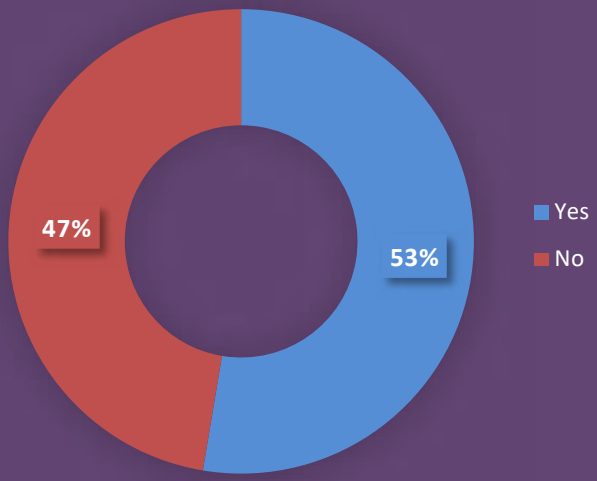
How comfortable do you feel walking in Bloomsburg? (From a traffic safety perspective)



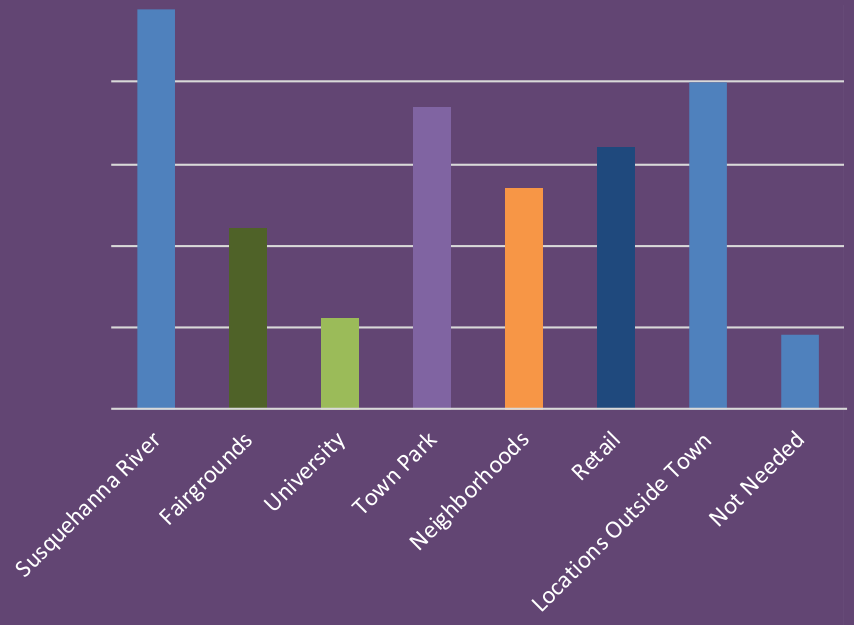
How comfortable do you feel biking in Bloomsburg? (From a traffic safety perspective)



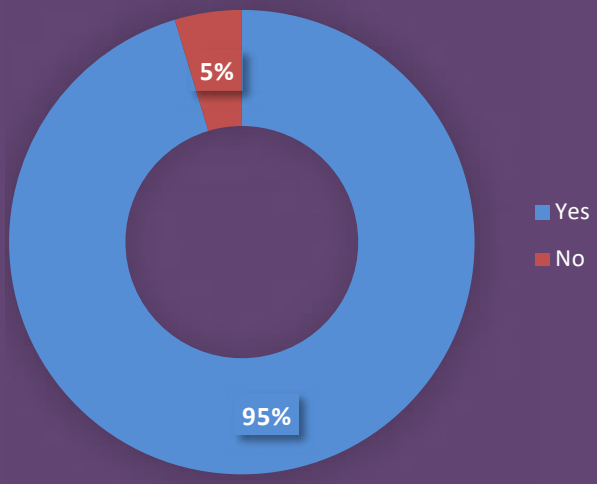
Are there adequate sidewalks in Bloomsburg?



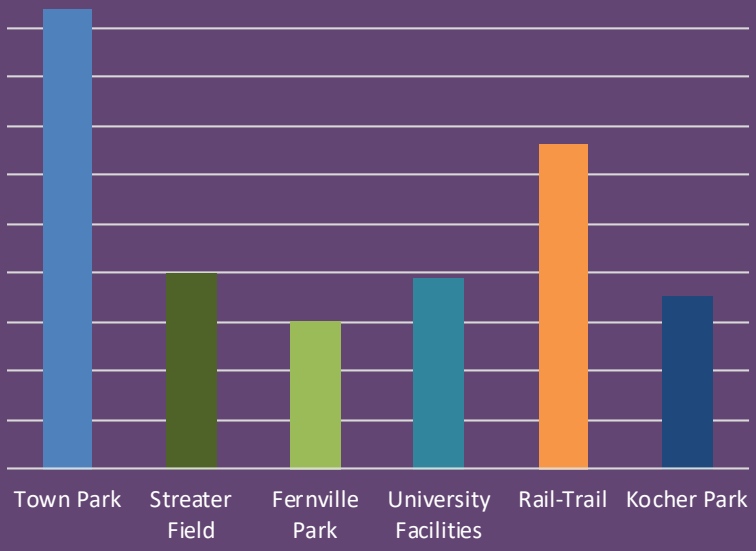
To what areas would you like improved pedestrian access?



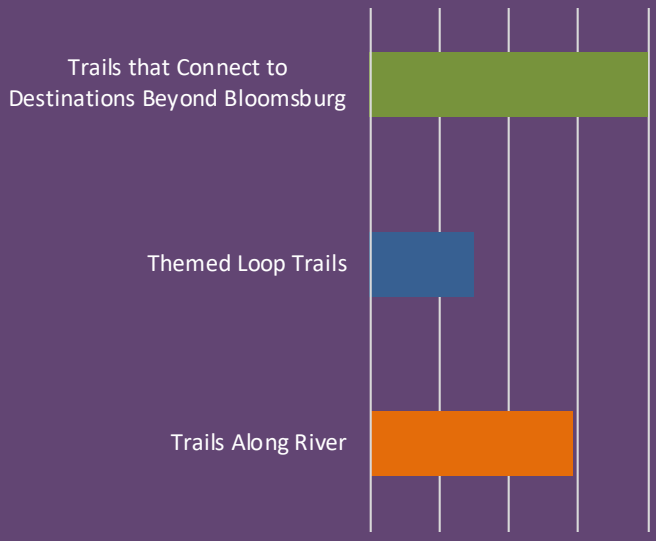
"As a motorist I would accept a slightly longer travel time if that meant a safer environment for pedestrians and bicycles."



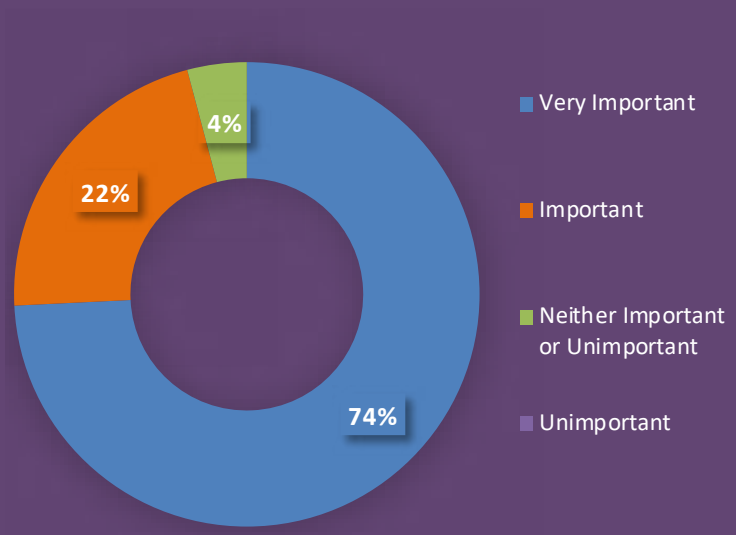
Which trails, parks, natural areas, or open spaces areas do you currently visit?



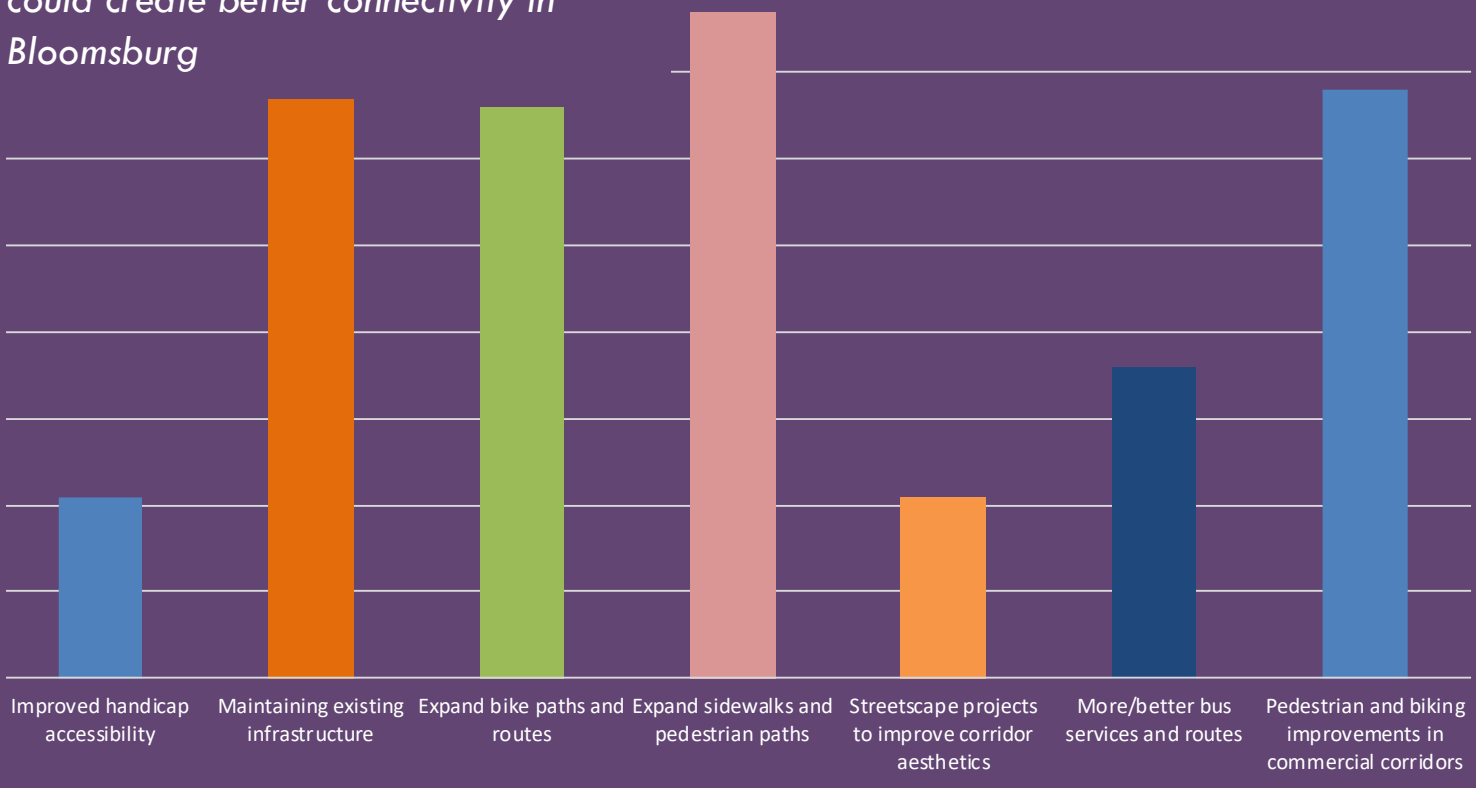
Which types of facilities would you like to see in Bloomsburg?

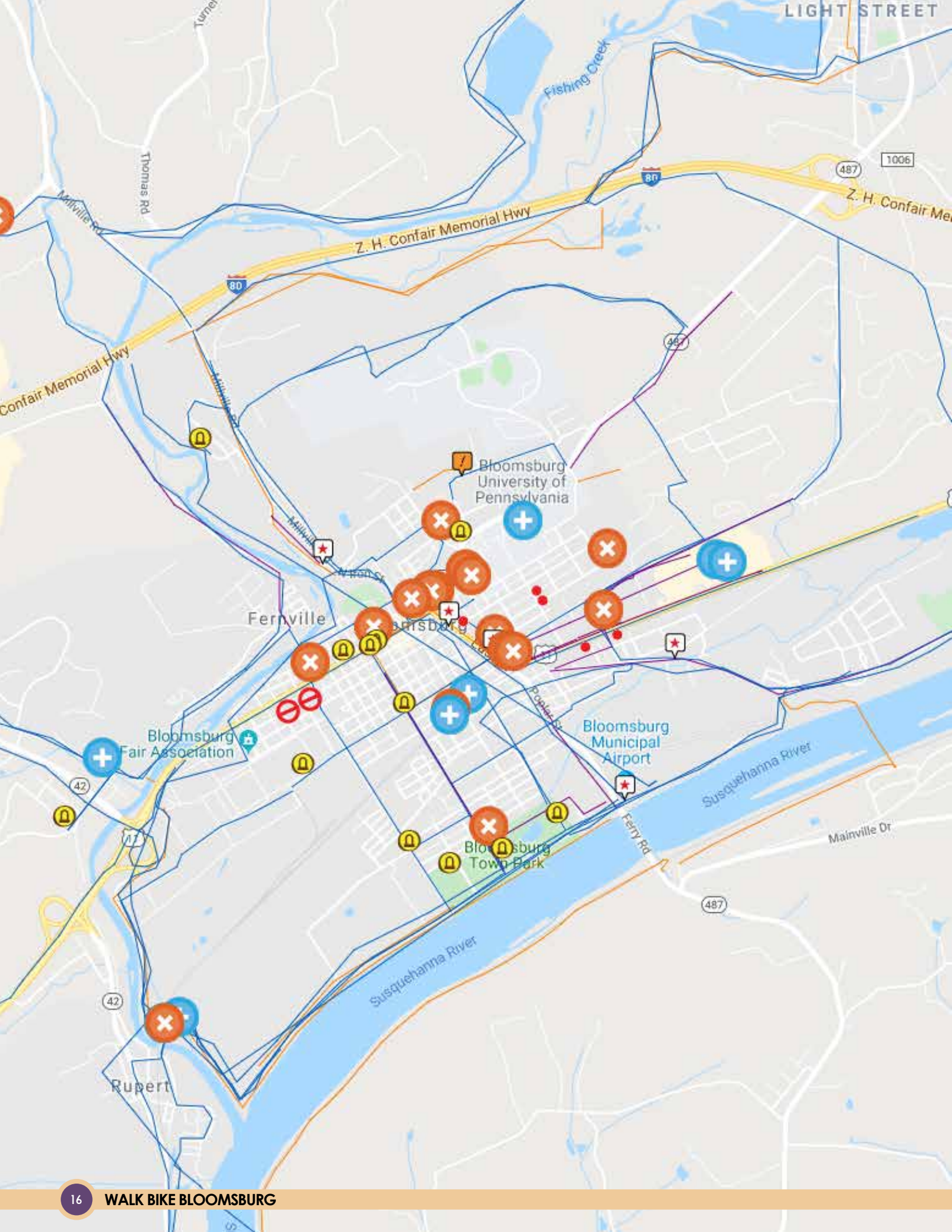


How important are sidewalk connections and trails to quality of life in Bloomsburg?



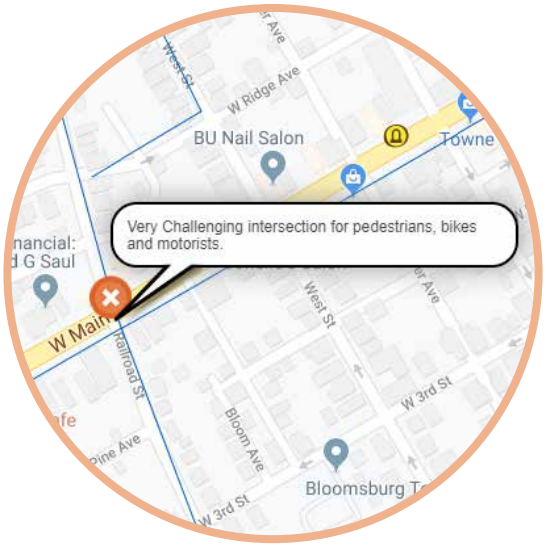
Select the most important issues that could create better connectivity in Bloomsburg




LIGHT STREET
Fishing Creek
Thomas Rd
Z. H. Confair Memorial Hwy
80
487
1006
Confair Memorial Hwy
Bloomsburg University of Pennsylvania
Fernville
Bloomsburg Fair Association
Bloomsburg Municipal Airport
Susquehanna River
Ferry Rd
Mainville Dr
Bloomsburg Town Park
Rupert
42
11

WikiMapping

The consultant team established an online mapping platform in which residents were able to identify important existing conditions (such as destinations, existing trails, sidewalk gaps, etc.) as well as desired improvements (trails, intersections to be improved, etc.) A total of 145 map comments were received during the project process.



22 Challenging intersections Identified

11 Important destinations Identified

6 Sidewalk gaps Identified

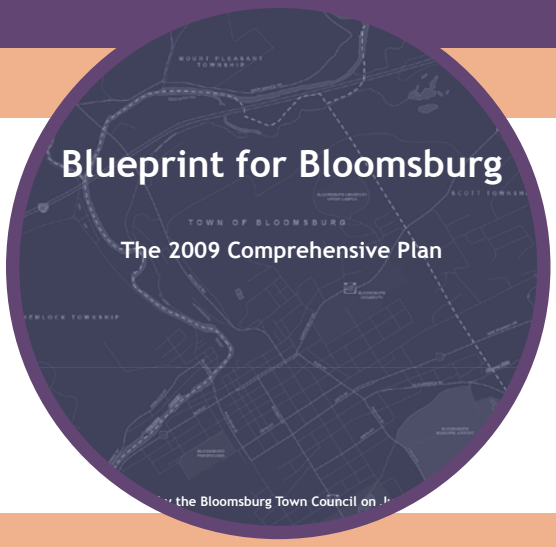
17 Locations for new bike racks identified

5 Locations for new crosswalks identified

The following pedestrian and bicycle improvement recommendations were received through Wikimapping:

- Path along Ft. McClure Boulevard
- Bike lanes on Main Street
- Bike lanes on Market Street
- Bike infrastructure on Railroad & Catherine Streets
- Pedestrian improvements along and across Columbia Boulevard (Route 11)
- Sidewalk that connects peripheral neighborhoods to downtown commercial district

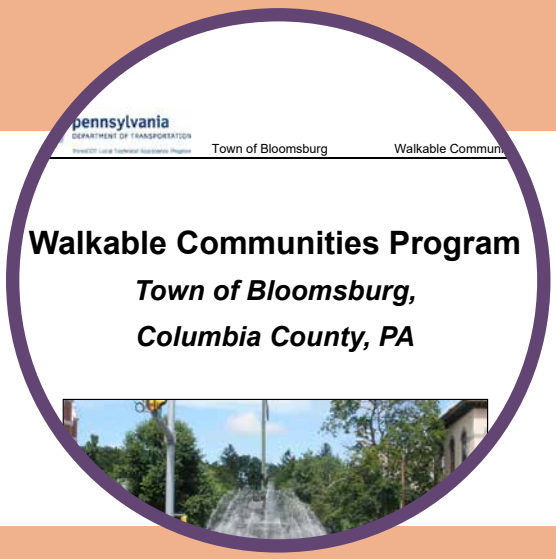
Relevant Planning Documents



Bloomsburg Comprehensive Plan, 2009

The Comprehensive Plan is a policy guide for the continuing development of the Town of Bloomsburg. The plan provides a vision of community life as a vibrant riverside community of citizens, businesses, and community and University partners, and establishes policies for improvement toward that vision over the next ten years. It provides a foundation for land use and development regulations, investment decisions, and partnerships.

Available at: https://bloomsburgpa.org/comprehensive-plan-blueprint-for-bloomsburg/



Walkable Communities Program, Town of Bloomsburg, 2010

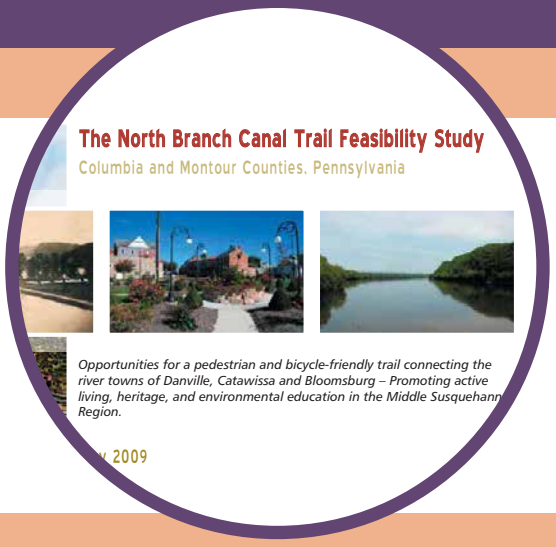
This document outlined existing connectivity challenges within Bloomsburg, and made preliminary recommendations to improve pedestrian safety at several of the Town's key intersections.

Middle Susquehanna Bicycle and Pedestrian Plan, 2019

This plan promotes the regional bicycle and pedestrian network for its varied benefits and Identifies "missing links" in the regional bicycle and pedestrian network where future projects would help interconnect communities. Available at: http://seda-cog.org/departments/transportation/middle-susquehanna-regional-bike-ped-plan/

North Branch Canal Trail Feasibility Study, 2009

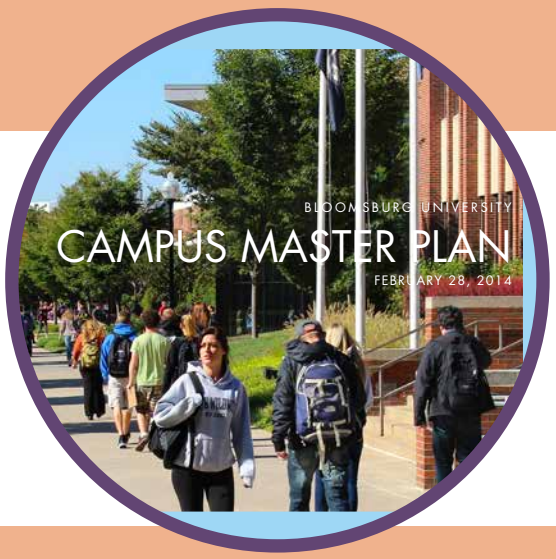
This report identifies opportunities for a pedestrian and bicycle-friendly trail connecting the river towns of Danville, Catawissa and Bloomsburg – a trail which promotes active living, heritage, and environmental education in the Middle Susquehanna Region



Available at: https://susquehannagreenway.org/sites/default/files/North%20Branch%20Canal%20Trail%20Feasibility%20Study%20SEDA%20COG%202009_Part1.pdf

Bloomsburg University Campus Master Plan, 2014

This documents outlines existing campus conditions, as well as proposed projects to be completed within 15 to 20 years, some of which include a new campus gateway, residential villages consisting of two clusters of residence halls (one on lower and one on upper campus), dining facility, and additional parking



Available at: https://intranet.bloomu.edu/documents/publications/BU_CMP.pdf

Streater Park Master Site Plan, 2010

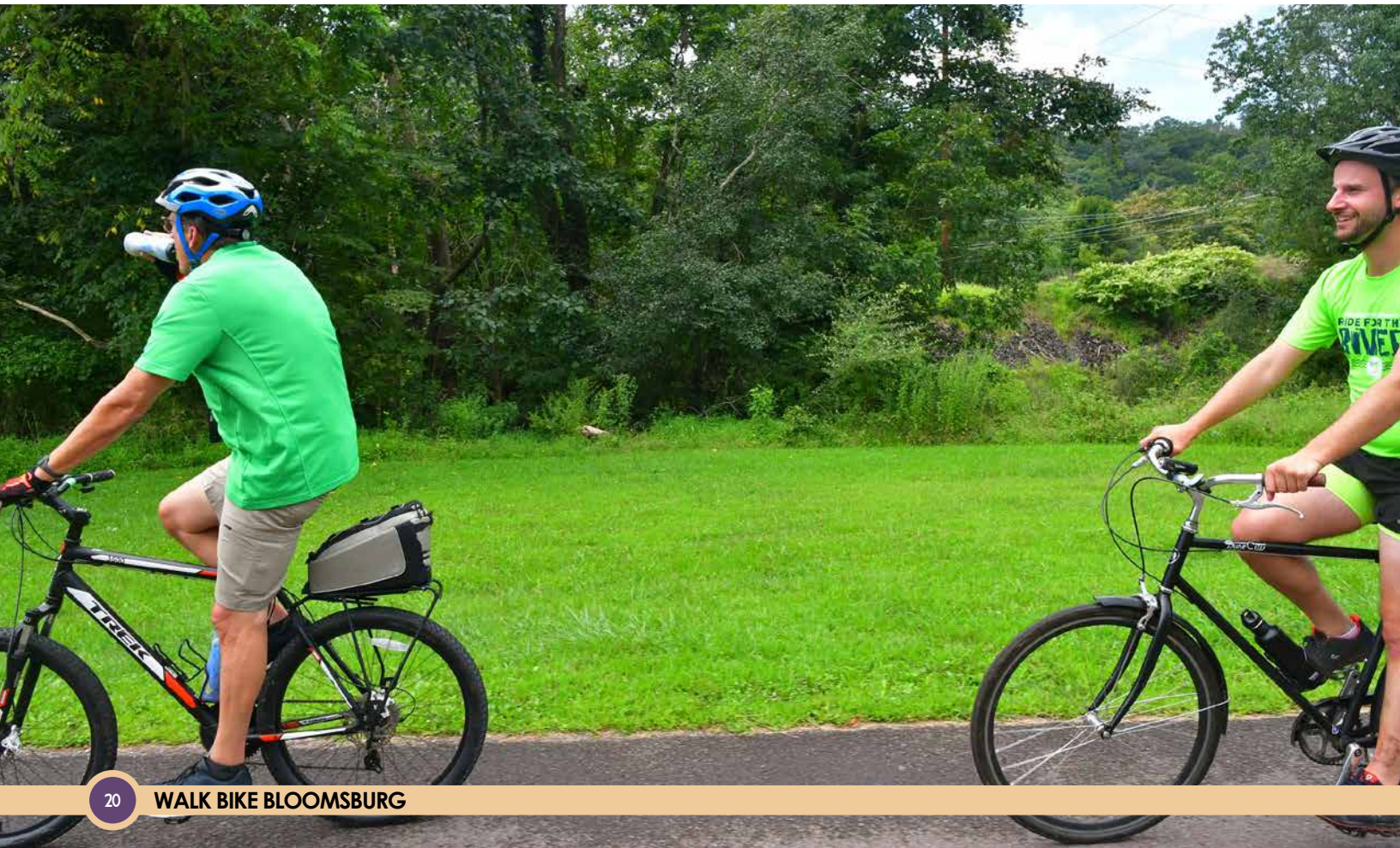
This plan envisions improvements to Streater Park along the Susquehanna River. Elements of the master plan include: Active recreation and sports fields, trail and multi-modal connections, historic preservation, stormwater management, and educational elements. Available at: https://susquehannagreenway.org/sites/default/files/Streater%20Park%20Master%20Site%20Plan%20SEDA%20COG%202010.pdf

Site Reconnaissance

The consultants conducted initial site reconnaissance on foot and by car on May 31st, 2019. The consultant team spent time on the busy roadways and thoroughfares to better understanding the pedestrian, bicycle, and vehicular challenges in Bloomsburg.

The consultant team returned to Bloomsburg for bicycle site reconnaissance on August 21st, 2019. Members of the Bloomsburg community as well as Mayor William Kreisher and County Commissioner Young joined the consultants and provided valuable insight into the challenges and opportunities in Town. The consultants completed additional site reconnaissance by car and on foot.

Important data was recorded on field maps and later used to determine placement of proposed improvements. Many photographs were taken of existing conditions in Bloomsburg and proved valuable reference during refinement of the draft improvement plan.



Existing Conditions

Transportation

The Town of Bloomsburg is bounded by Interstate 80 (Z.H. Confair Memorial Highway) to the north, and the Susquehanna River to the south. US Route 11 (Columbia Boulevard) bisects the Town and runs from Scott Township in the east to Montour Township in the west. Main Street Bloomsburg, the center of the downtown commercial district and the area of the highest density for retail, is a four-lane PennDOT roadway.

Open Space & Recreation

Bloomsburg contains several important areas of open space and recreation that must be considered when planning for multi-modal networks. Bloomsburg Town Park and Streater Field are adjacent to the Susquehanna River, and Bloomsburg University Upper Campus is located at the one of the highest elevations in the northern part of Town.

Housing

There is a diversity of housing types within Bloomsburg which serve a variety of residents. The downtown commercial business district contains a majority of mixed-use commercial buildings, with retail on the first floor and residences above. Bloomsburg University has several multi-unit dwellings that house the on and off-campus student population. Beyond the downtown commercial business district, the majority of homes in Bloomsburg are single-story residences. The density of these homes is higher to the south of Main Street between the river, and lower in the northern part of Town along Millville Road.

Schools

The Bloomsburg Elementary, Middle, and High Schools are important destinations for primary school children in Town. Bloomsburg University is a vital destination for college students living and commuting within Bloomsburg. It is important that safe pedestrian and bicycle routes be considered for the student populations within Town.


Existing Conditions
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
LIGHTSTREET RD
CLOVER
SUNSET
IRONDALE
SUMMIT
FRANKLIN
WIRT
WALLER
GLENN
FAIR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
SEVENTH
MAPLE
EIGHTH
PARK
PEARL
EAST ST
Fernville Family Park
BLOOM ST
HEMLOCK ST
MILLER
IRON
RIDGE
PINE
MURRAY
MAIN ST
JEFFERSON
WEST
MARKET ST
CENTER
CHERRY
OLD BERWICK RD
RAILROAD ST
SCOTT
JAMES
BARTON
Elementary School
SIXTH ST
CATHERINE
POPLAR ST
NINTH
TENTH
ELEVENTH
TWELFTH
COLUMBIA
COLONIAL
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Fishing Creek
Susquehanna River
Fair Grounds
Middle School
High School
Bloomsburg Town Park
RAILROAD
SANDS
RUPERT DR
Streater Field
11
80

Sidewalk Inventory

The Town of Bloomsburg possesses a significant sidewalk network, the backbone of any walkable community. The sidewalk network is most complete closer to the downtown commercial district. Sidewalk gaps and missing connections to downtown Bloomsburg exist in the neighborhoods on the periphery of the downtown.
The areas most affected by these gaps are:

- The residential and commercial areas to the east of Poplar Street / Ferry Road, and south of Columbia Boulevard (Route 11)
- The residential neighborhoods along Millville Road, north of the downtown commercial district
- The residences on Fifth Street, heading east towards Scott Township

Sidewalk Inventory

- Existing Sidewalk
- Local Road
- State Road
- Building
- Parcel Boundary
- Park & Open Space
- School
- Waterbody
- Stream
- Municipal Boundary

North NTS

Existing Trails

There are several trails within the project area that are used by the population of Bloomsburg. The most notable is the Bloomsburg Rail-Trail along the western border of the municipality. This trail begins at Railroad Street, and ends at Millville Road adjacent to the Steve Shannon Tire and Auto Center.

This trail as well as those within Bloomsburg Town Park and the Hoffman Natural Area exist in isolation with no clear trail 'network'. These important and albeit isolated trails have the potential to be connected as part of a greater system in Bloomsburg.


Existing Trails
Existing Trail
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
LIGHTSTREET RD
CLOVER
SUNSET
IRONDALE
SUMMIT
FRANKLIN
WIRT
WALLER
GLENN
FAIR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
PINE
IRON
RIDGE
LIGHTSTREET
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
Fernville Family Park
BLOOM ST
MILLER
MURRAY
EAST ST
PEARL
PARK
MAPLE
SEVENTH
EIGHTH
OLD BERWICK RD
CHERRY
HEMLOCK ST
MAIN ST
JEFFERSON
MARKET ST
CENTER
WEST
RAILROAD ST
SCOTT
JAMES
BARTON
Elementary School
Fishing Creek
CATHERINE
POPLAR ST
FORT MCCLURE
FERRY RD
RIVER HILL DR
Fair Grounds
SIXTH
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
ZEHNER
COLONIAL
Middle School
High School
RAILROAD
Bloomsburg Town Park
Susquehanna River
SANDS
RUPERT DR
Streater Field
11
80

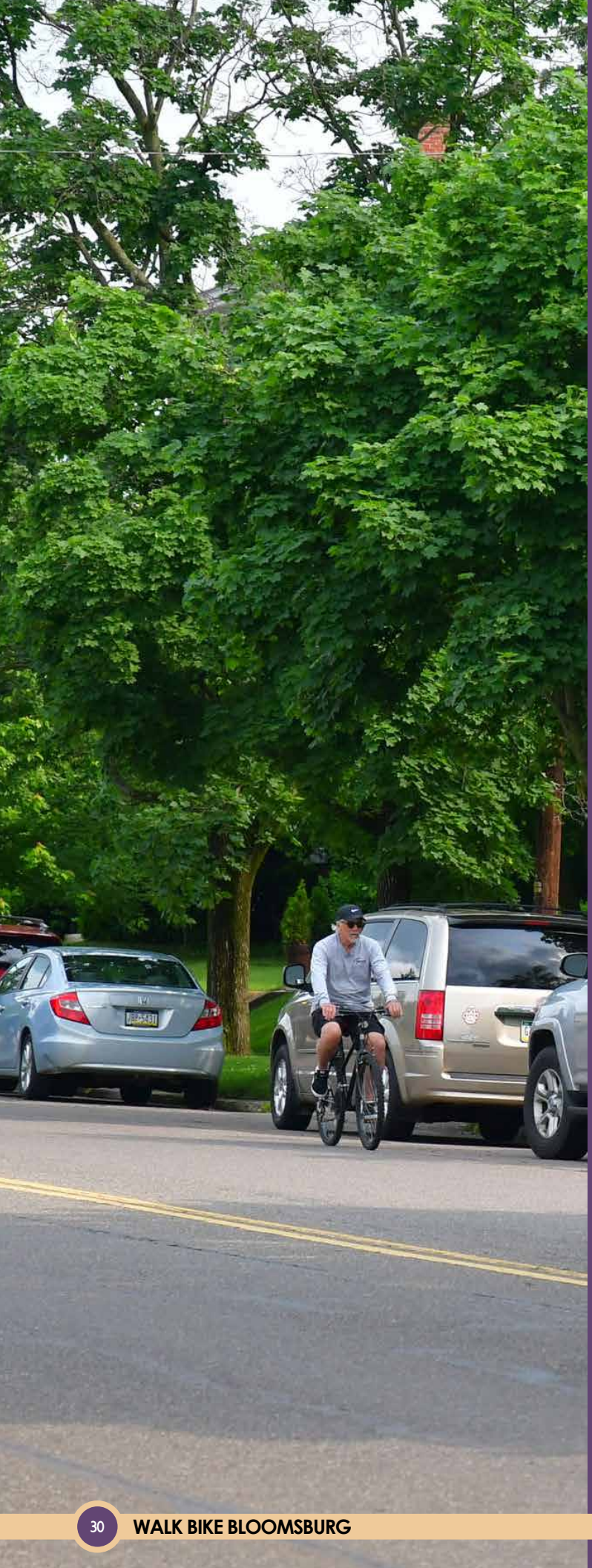
STRAVA Run & Bike

STRAVA is a popular application which utilizes GPS tracking to record routes by walkers, runners, and cyclists. STRAVA heat-mapping was used to locate popular routes within and around Town. This mapping delineates the highest used routes within Bloomsburg. STRAVA data provides insight into the most well-traveled and potentially safest routes for future pedestrian and bicycle improvements.

In both sets of data, the following corridors are used consistently by runners, walkers, and cyclists:

- Main Street
- Market Street
- Fifth Street
- Railroad Street
- Catherine Street
- Fort McClure Boulevard
- East Street
- Bloomsburg Rail-Trail


STRAVA Data
STRAVA Run
STRAVA Bike
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS



Reported Pedestrian and Automobile Collisions 2014-2019

This data, provided by the Bloomsburg Police Department, delineates the reported pedestrian and automobile collisions between 2014 and 2019. Each of these locations were scrutinized by the consultant team for potential pedestrian and bicycle safety improvements.


Reported Pedestrian & Automobile Collisions 2014-2019
Pedestrian Collision
Automobile Collision
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North NTS
Hoffman Natural Area
Z H CONFAIR MEMORIAL HW
80
LIGHTSTREET RD
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
Fishing Creek
CLOVER
SUNSET
KENT
MCGUIRE
COUNTRY CLUB
YORK
FRANKLIN
WIRT
WALLER
GLENN
FAIR
FIRST
IRONDALE
SUMMIT
PENN
Bloomsburg University
MICHAEL
CHESTNUT
OAK
LOCUST
SPRUCE
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HW
COLUMBIA BLVD
PINE
IRON
MILLER
RIDGE
Fernville Family Park
BLOOM ST
SEVENTH
MAPLE
EIGHTH
PARK
HEMLOCK ST
MURRAY
PEARL
EAST ST
OLD BERWICK RD
CHERRY
MAIN ST
JEFFERSON
MARKET ST
CENTER
WEST
RAILROAD ST
SCOTT
JAMES
BARTON
FIFTH ST
SIXTH ST
Elementary School
POPLAR ST
CATHERINE
NINTH
TENTH
ELEVENTH
TWELFTH
COLUMBIA
SIXTH
Fair Grounds
ZEHNER
COLONIAL
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Middle School
High School
Bloomsburg Town Park
Susquehanna River
ELEVENTH
SANDS
RUPERT DR
Streater Field
11

Roadway Level of Stress

This data, provided by SEDA COG (a regional planning organization) evaluates the relative level of stress for cyclists and pedestrians traveling on roadways within Bloomsburg.

The roadways in green are the lowest stress routes (most comfortable) for pedestrians and cyclists, roadways in yellow are mildly stressful, and roadways in red are the most stressful for multi-modal transportation (least comfortable).

This data was combined with STRAVA data, survey results, collision data, and others data to determine routes best suited for pedestrians and cyclists.

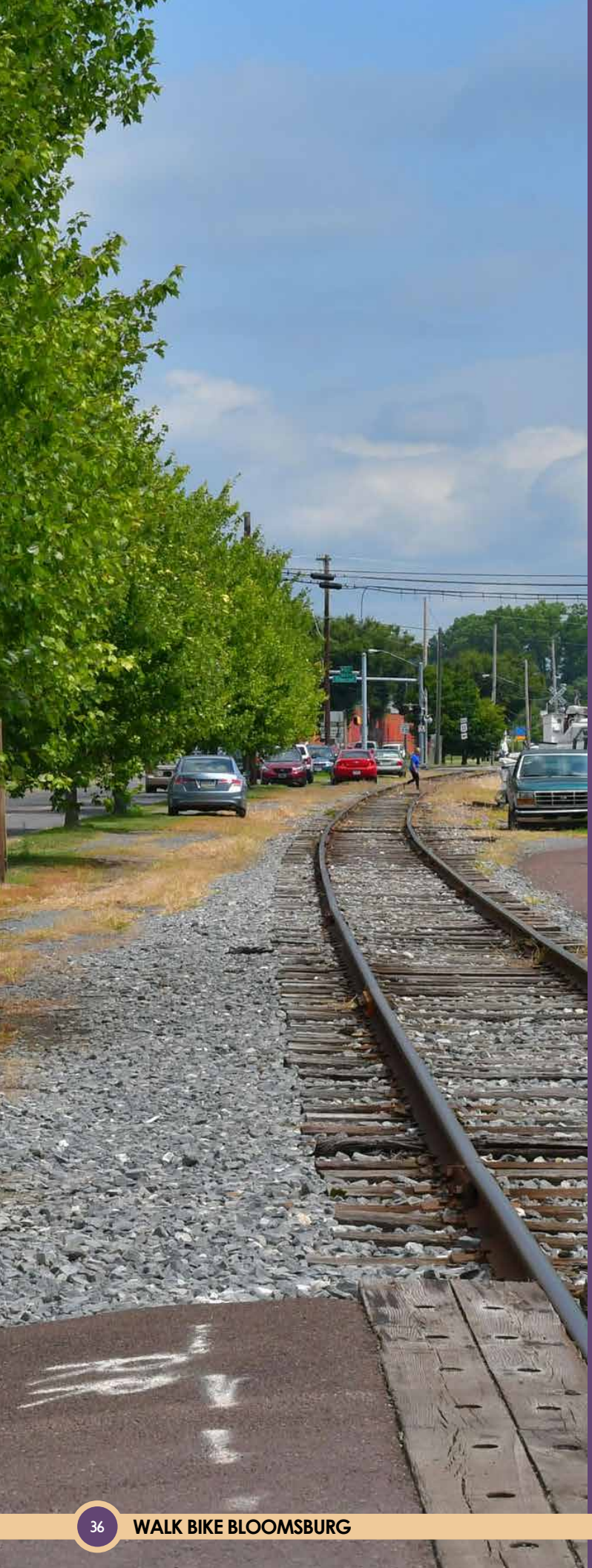

Level 1 Stress (Low)
Level 2 Stress (Mid)
Level 3 Stress (High)
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS

Challenging Intersections

Identified through site reconnaissance, collision data, and public input, these intersections were identified as challenging locations for pedestrian and cyclists.

The consultant team reviewed each intersection to determine improvements that could be made to increase multi-modal safety.


Challenging Intersection
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS



Community Desired Trails

During public meetings through the project process, members of the public as well as the Walk Bike Bloomsburg Committee delineated desired routes through Bloomsburg. The consultants used this information, in part, to determine needed pedestrian and bicycle improvements.

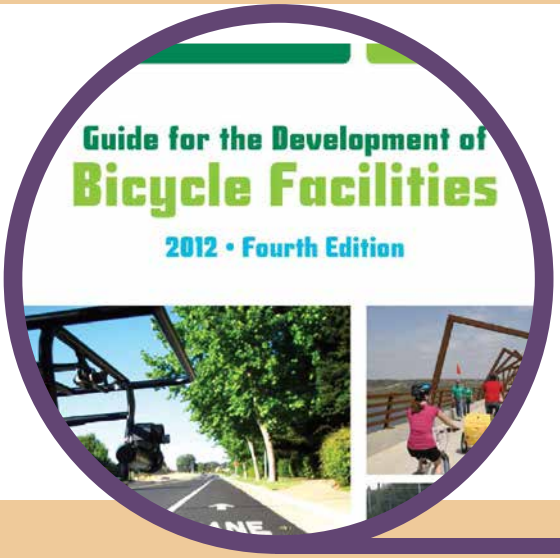

Community Desired Connection
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS


PIZZA
PAPA JOHNS
DELIVERY

Recommendations 3

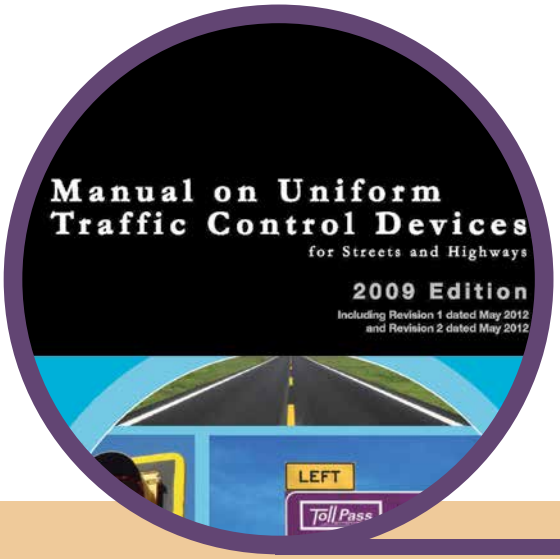
Design Guidelines

Various national and locally recognized organizations have developed bicycle and pedestrian design standards. The following guides were referenced extensively throughout the design process.



AASHTO - Guide for the Development of Bicycle Facilities

AASHTO provides federally accepted standards for the development of bicycle facilities including information on: Bicycle Planning, Bicycle Operation and Safety, Design of On-Road Facilities, Design of Shared Use Paths, Bicycle Parking Facilities, and Maintenance and Operations. All improvements should adhere to these standards.

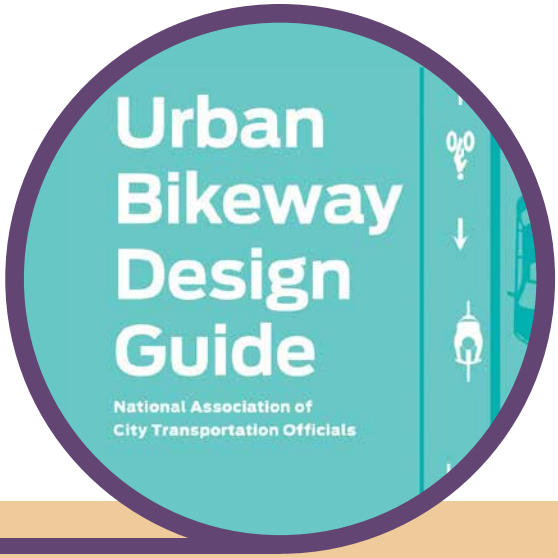


MUTCD - Manual on Uniform Traffic Control Devices

The Manual on Uniform Traffic Control Devices provides standards for the design and implementation of traffic control devices that provide for safe and efficient transportation. Part 9 of the manual includes traffic control for bicycle facilities. The section includes signs, pavement markings and highway traffic signals for both on-road and off-road trail facilities. All guidance in this document should be adhered to when implementing the alignment alternatives.

NACTO - Urban Bikeway Design Guide

The NACTO Urban Bikeway Design Guide provides cities with state-of-the-practice solutions that can help create complete streets that are safe and enjoyable for bicyclists. Bike Lanes, intersection treatments, bicycle signals, bikeway signage & marking, and the practice of designing for all ages & abilities are all covered within this guide.

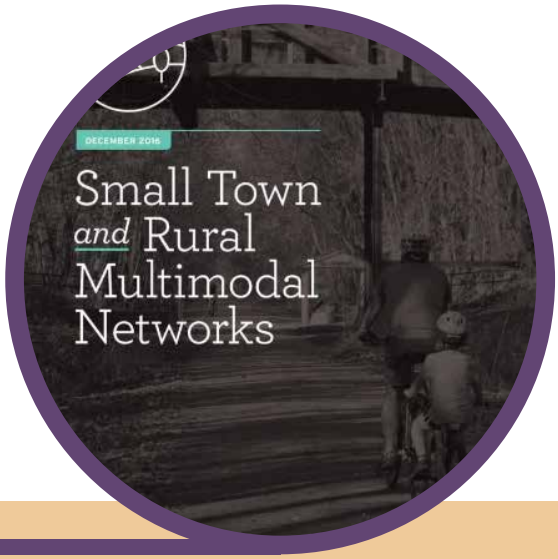


NACTO - Urban Street Design Guide

The NACTO Urban Street Design Guide provides innovative solutions to design for and around the special characteristics of the urban environment. Street Design Elements, Interim Design Strategies, Intersections Improvements & Design Elements and Design Controls are all discussed in detail.

FHWA - Small Town and Rural Multimodal Networks

The FHWA - Small town and Rural Multimodal Networks provides design guidance for pedestrian and bicycle safety in areas of smaller scale. This document focuses on establishing safe multi-modal connections within and automobile-dominated landscape. Illustrations, technical diagrams, and photographs detail proposed improvements to roadways, sidewalks, intersections, and more.



Bike Lanes

Connectivity Improvements

Bicycle Lanes - Bicyclists operate within a designated portion of the roadway that is separate from motor vehicle traffic:
Bike lanes should be provided on both sides of two-way streets

Bike Lane Widths without Parking: 4' minimum (not adjacent to curb) and 5' minimum (adjacent to curb or other obstacle)

Bike Lane Widths with Parallel Parking: 5' minimum to 7' (wider bike lanes are recommended adjacent to parking areas to reduce conflict with opening vehicle doors) Bike lanes should be placed between the parking lane and travel lane (this applies to diagonal and parallel parking)

Storm Drains and Utility Covers: Bike lanes should be wide enough to accommodate bicyclists swerving to avoid obstructions.

Bike Lane Striping: 4" to 6" solid white line (dotted lines are optional at major driveways and intersections, solid lines should be continued at all minor driveways)

Pavement Marking: Bike Lane Symbols (MUTCD 9C - 3)

Bike Lane Signage: Bike Lane (R3-17) placed at periodic intervals with either Ahead (R3-17aP) or Ends (R3-17bP) where appropriate.

Shared Use Paths

Shared Use Paths - Shared use paths are bikeways that are physically separated from the vehicular cartway by a physical barrier or open space. Shared use paths also include side paths. Design of these facilities should comply with current ADA requirements. Path users include:

- Bicyclists of all types
- Inline & roller skaters, and skateboarders
- Kick scooter users
- Pedestrians

Design Requirements

Trail width: 10' minimum to 14' (8' is permitted under rare circumstances) Trail Shoulder width: 2' minimum shoulder free of vertical obstructions (fence, sign, wall, etc.), 3' to 5' is preferred

Trail Shoulder slope: 1 vertical to 6 horizontal (1:6) maximum
Adjacent to a body of water or slope: 1 vertical to 3 horizontal (1:3) or greater vertical distance between the trail and nuisance should be minimum 5' (physical barrier or rail is recommended and may be placed at a minimum 1' from the edge of trail)

Vertical Clearance: 8' minimum, 10' preferred

Separation between Trail and roadway: 5' minimum from edge of pavement (if less than 5' a physical barrier is needed)

Trail cross slope: Not to exceed 2%, 1% is recommended

Trail grade slope: Maximum grade should be 5% or match that of the adjacent roadway. For an off-road trail grade may go up to 8% for not more than 200 lineal feet.

Connectivity Improvements

Signage - Signage can be provided along the road with no cartway (pavement) improvements. Signage informs motorists to watch out for bicyclists on the roadway.

MUTCD standards: Share the Road (W11- and W16-1P) signs and Bicyclist May Use Full Lane (R4-11)signs; Place signs at the beginning of the bike route, roadway intersections, and throughout the segment where deemed required, and at the end of the bike route.

Marked Shared Lanes - Bicyclists operate on the roadways with motor vehicles (Not to be used on roads with posted speed limits in excess of 25 mph):

Shared-Lane Striping: (MUTCD 9C - 9) placed at intersections and at intervals not greater than 250'

Striping position on cartway with Parallel Parking: Place center of sharrow 11' from face of curb or edge of travel way

Striping position on cartway with no Parking: 4' from face of curb or edge of travel way

Signage (noted previously) is still required

Image from: Flickr

Paved Shoulders - Bicyclists operate on the shoulders of roadways, typically on rural roadways:

Paved Shoulders should be located on both sides of the road
Shoulder width with no vertical obstruction: 4' shoulder width minimum

Shoulder width with vertical obstruction (curb, guide rail, etc.): 5' shoulder width minimum

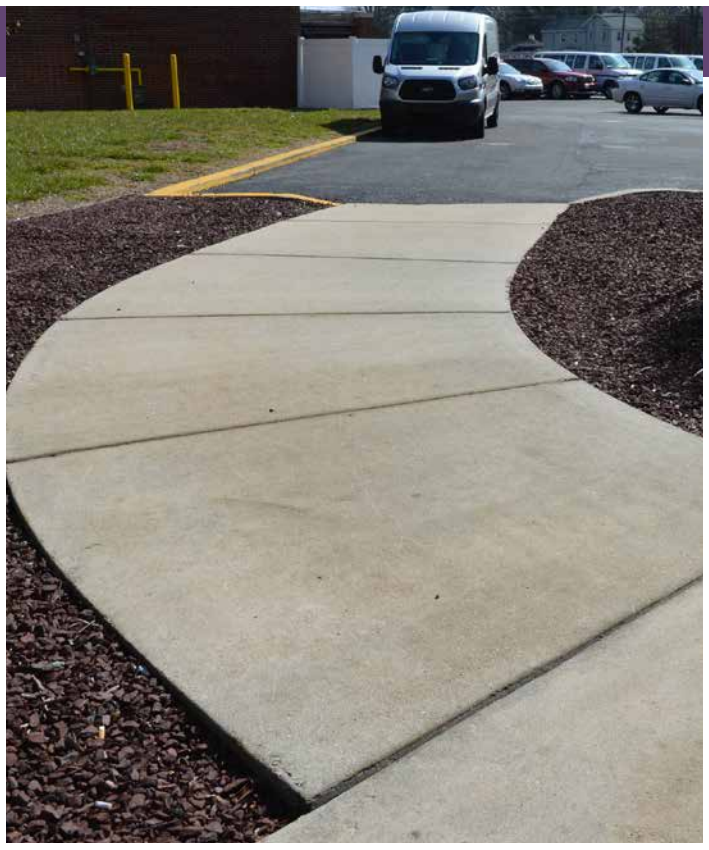
Image from: PedBikeImages

Trail Surface Types

Image from: Pexels

Asphalt Surfaces

Asphalt surfaces provide for the widest variety of trail users including bicyclist, walkers, joggers, wheelchair users, and in-line skaters. Initial installation costs are relatively high (lower than Portland cement concrete however) compared to other trail surface types. However, long term maintenance costs will remain lower than others if properly installed and maintained. Asphalt trails are preferred in flood prone areas. Porous asphalt can also be used in situations where stormwater infiltration or a pervious surface is required. Porous asphalt should not be used in flood prone areas where silt will clog the voids in the pavement.



Concrete Surfaces

Portland cement concrete pavement is the most durable material for trail surfaces but is the most costly. Concrete trails are commonly used in urban environments. Advantages of concrete include longer service life, reduced susceptibility to cracking and deformation from roots and weeds, and a more consistent riding surface after years of use and exposure to the elements. The joints in concrete trail treads can degrade the experience of using the path for some wheeled users. In addition, users can see pavement markings more easily on asphalt than on concrete, particularly at night. Concrete's light color on a trail reflects the sunlight.

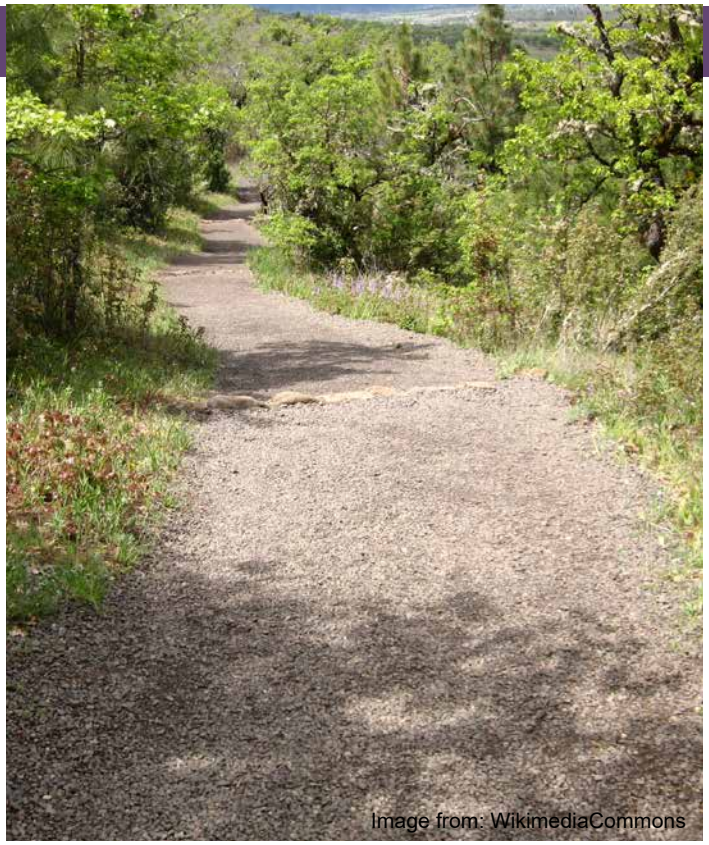


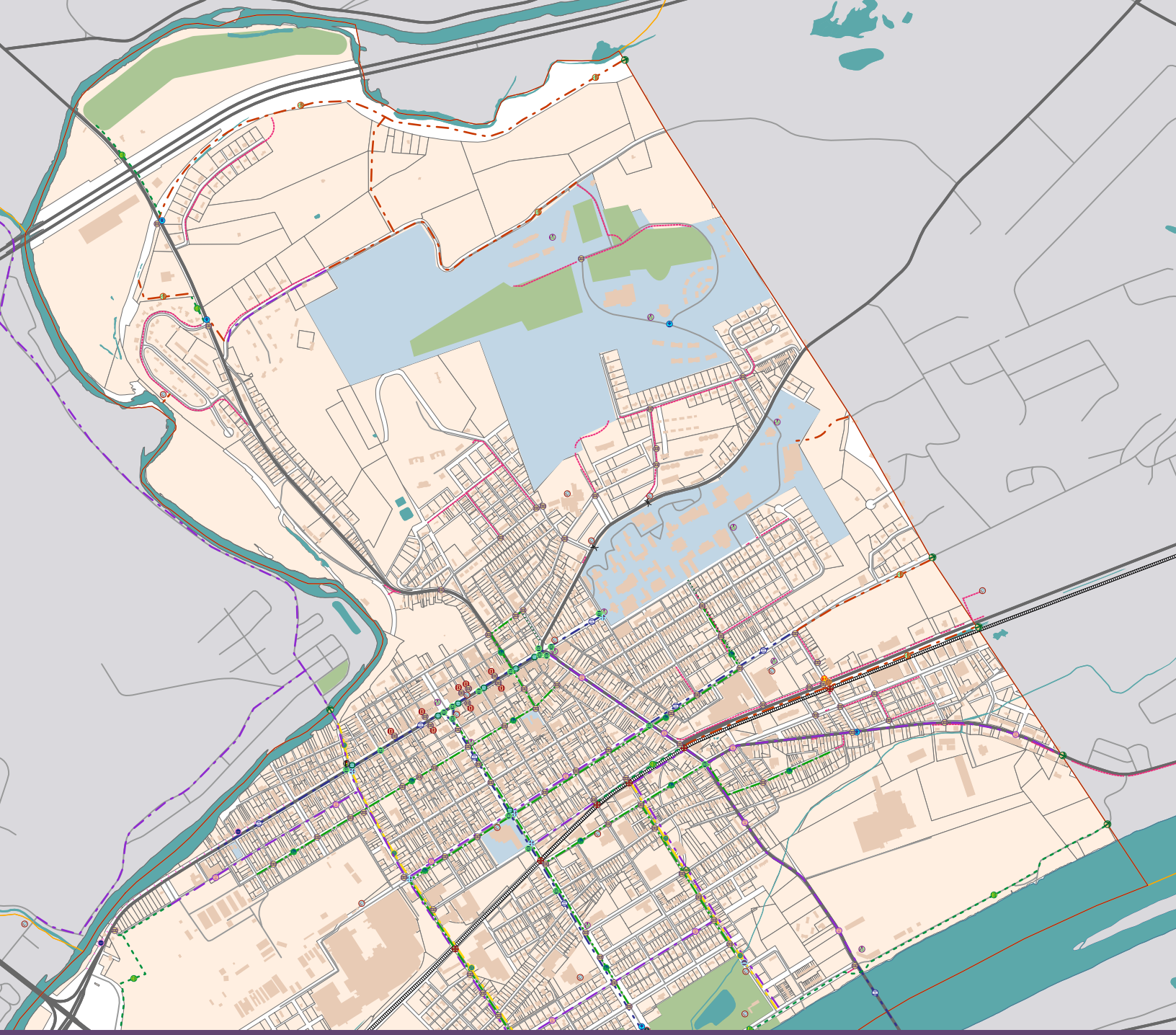
Image from: WikimediaCommons

Compacted Aggregate Surfaces

Compacted aggregate surfaces, or stone dust trails, can accommodate all trail user types with the exception of in-line skaters. Initial installation costs for this trail surface are relatively low, however long term maintenance costs increase due this surface's higher susceptibility to erosion, especially if not properly installed with swales and cross drains. Crushed limestone or sandstone or "Trail Surface Aggregate (TSA) Mix" are typical aggregates used in this situation. A compacted aggregate surface can also serve as base material for an asphalt surface if trail use increases or funds become available for a surfacing upgrade. Compacted aggregate surfaces should be avoided in flood prone areas or on slopes over 3%.

Pavers

Pavers, composed of clay or concrete, may be a suitable pavement material where the context, such as in Bloomsburg, is of a historic nature. As evidenced by the many brick sidewalks in the town. This material is highly aesthetically pleasing and durable. However, this material is the most expensive type of trail or sidewalk surface and is typically used only in areas of high visibility or in areas of historic significance.



Proposed Improvements Plan

The proposed improvements plan is broken down into 400 scale sheets over the next 11 pages. This plan proposes approximate locations of pedestrian and bicycle improvements in Bloomsburg. Based upon site analysis, field reconnaissance, and information gathered at committee meetings, several guiding principles were established.

- Establish safe connections to the schools of Bloomsburg.
- Connect to parks and open space of the Bloomsburg and the surrounding area.
- Establish safe connections across barriers such as railroad lines and high-volume roadways.
- Connect to the amenities and services of Bloomsburg as well as adjacent municipalities.
- Establish cross-Town connections (north/south & east/west) on low-stress or low-traffic volume routes.
- Connect neighborhoods (via low-stress routes) to the downtown commercial business district.

RECOMMENDATIONS

1	2	
3	4	5
6	7	8
9	10	
11		

Sheet 1 of 11

- Bike Parking
- Decorative Crosswalk
- Crosswalk
- Handman
- Rapid Flashing Beacon
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- Sidepath
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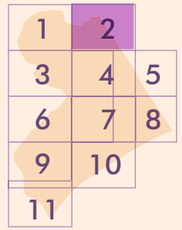
- Speed Cushion
- Speed Table
- Median Through Intersection
- Traffic Light

WALK BIKE BLOOMSBURG

North 0 200′ 400′

RECOMMENDATIONS



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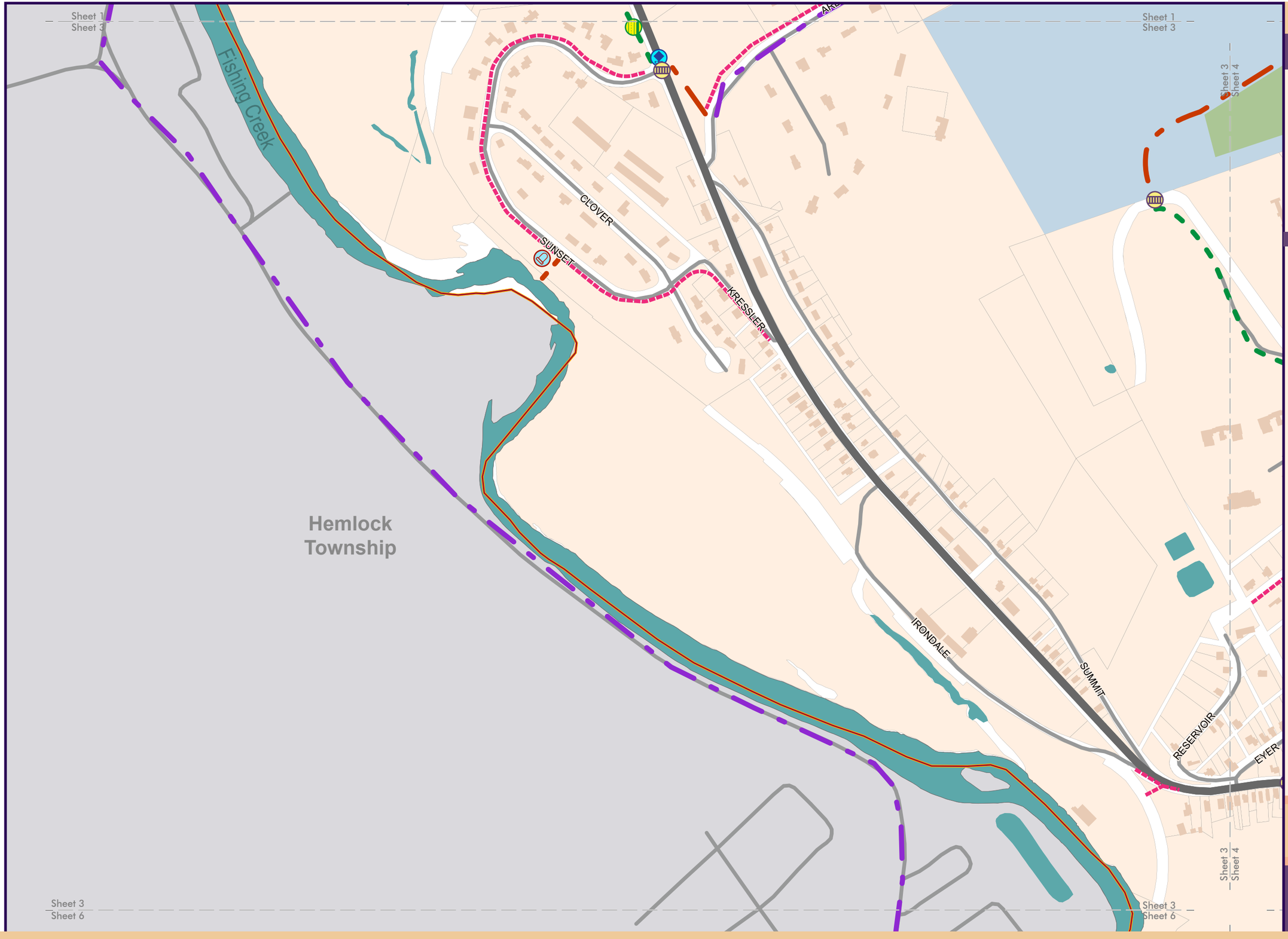

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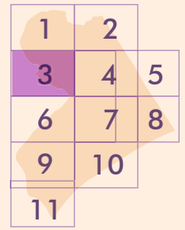

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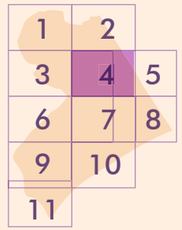

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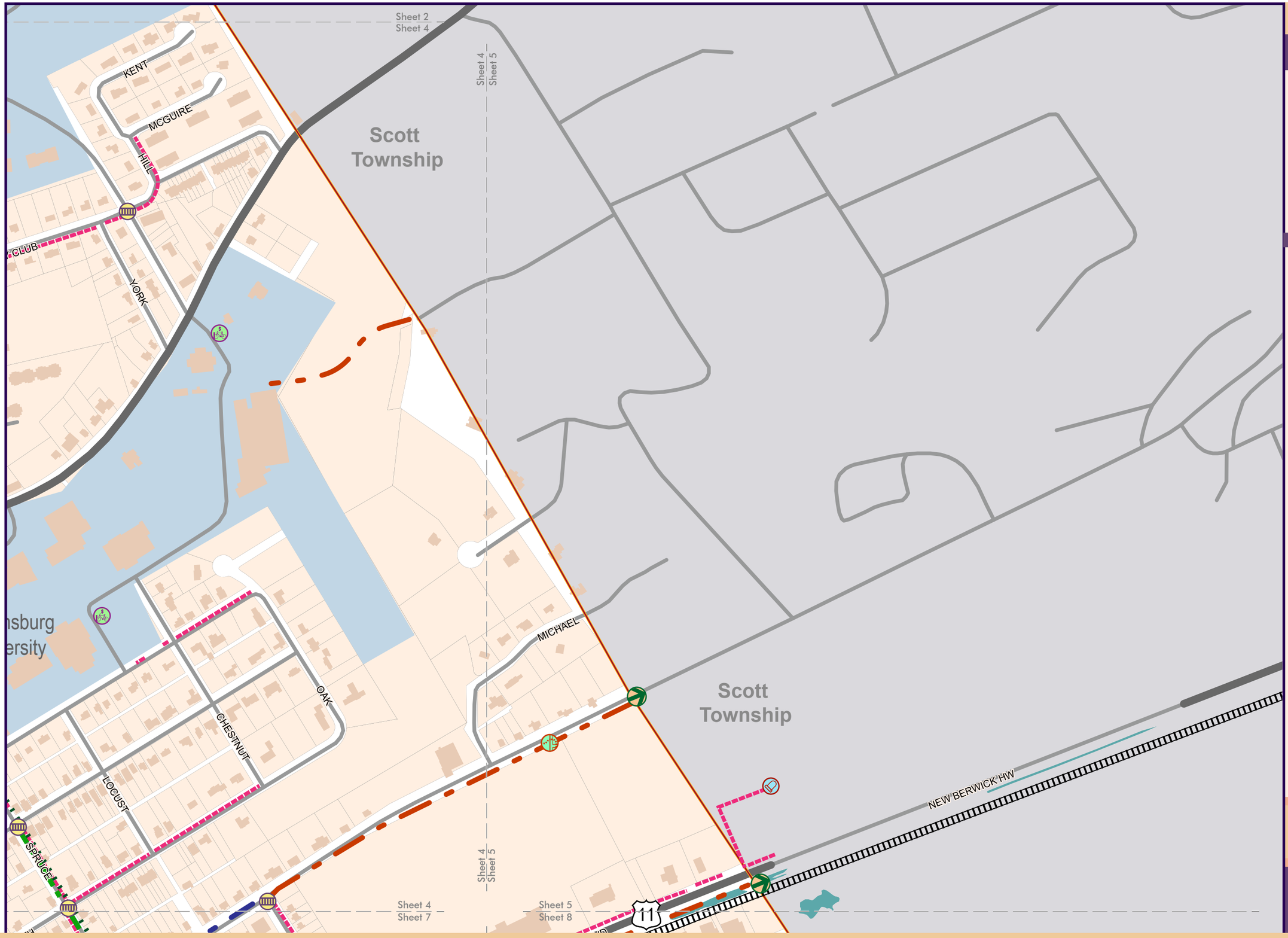

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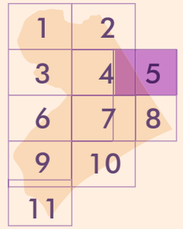

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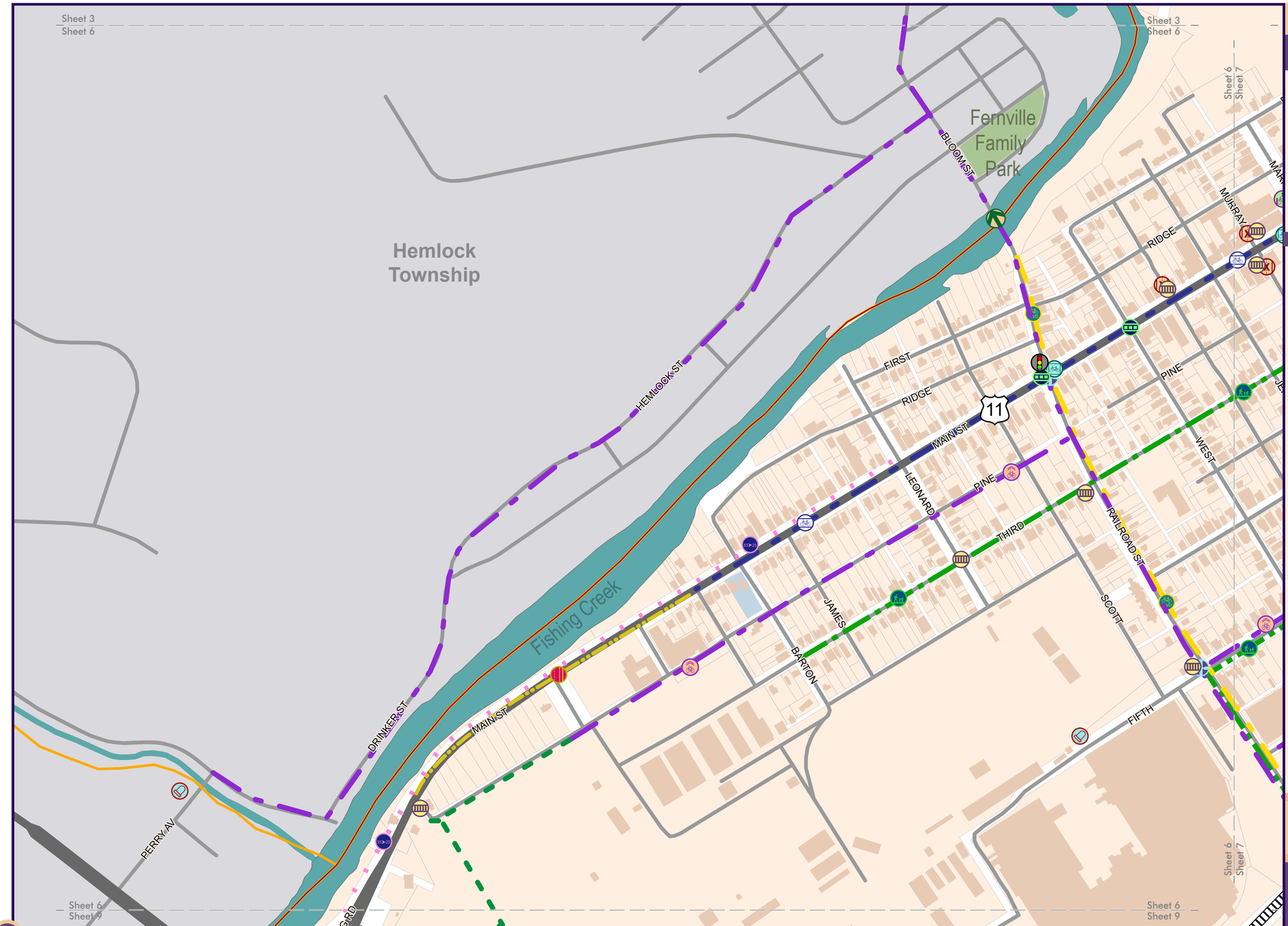

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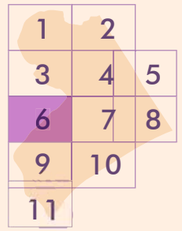

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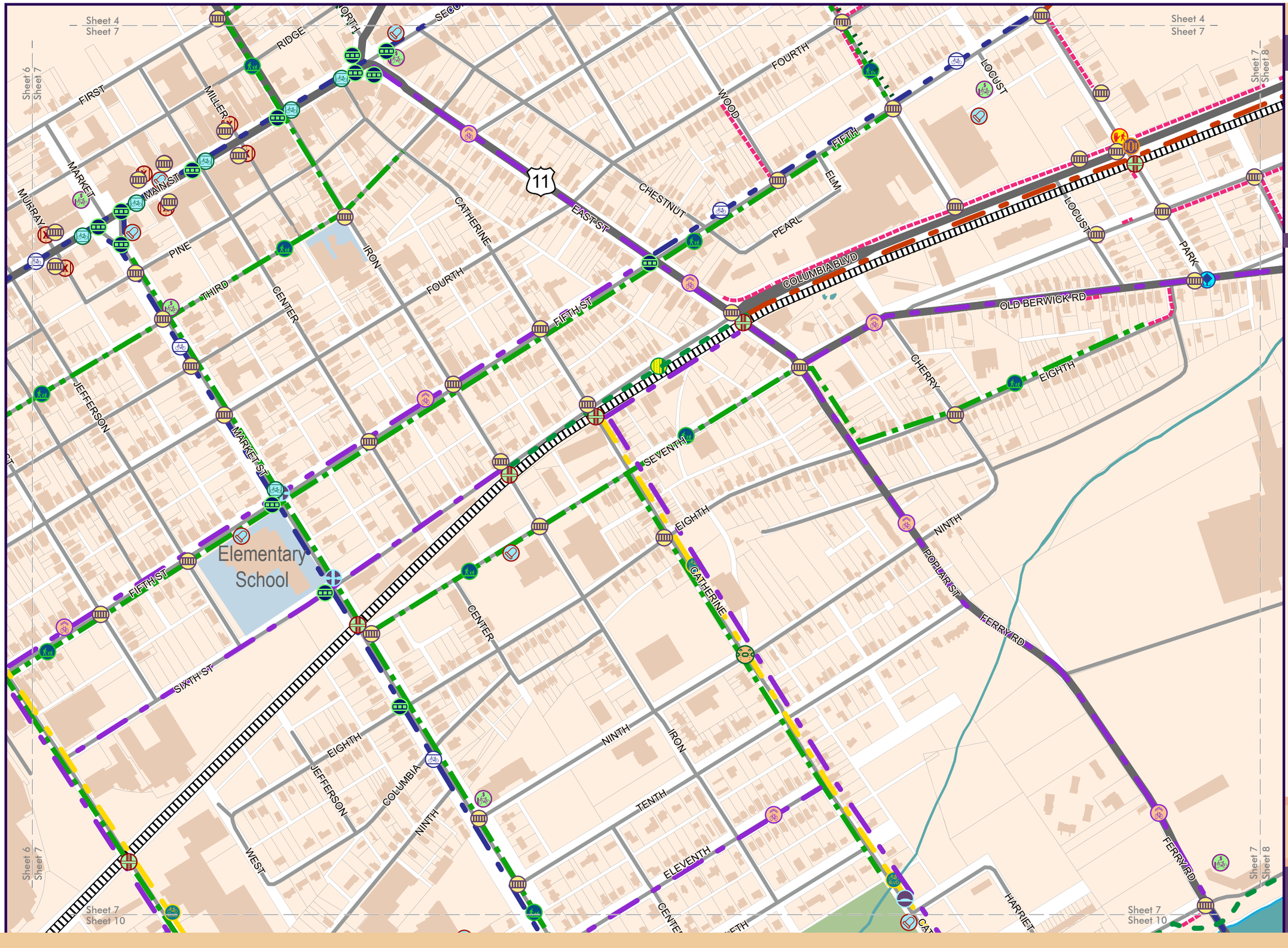

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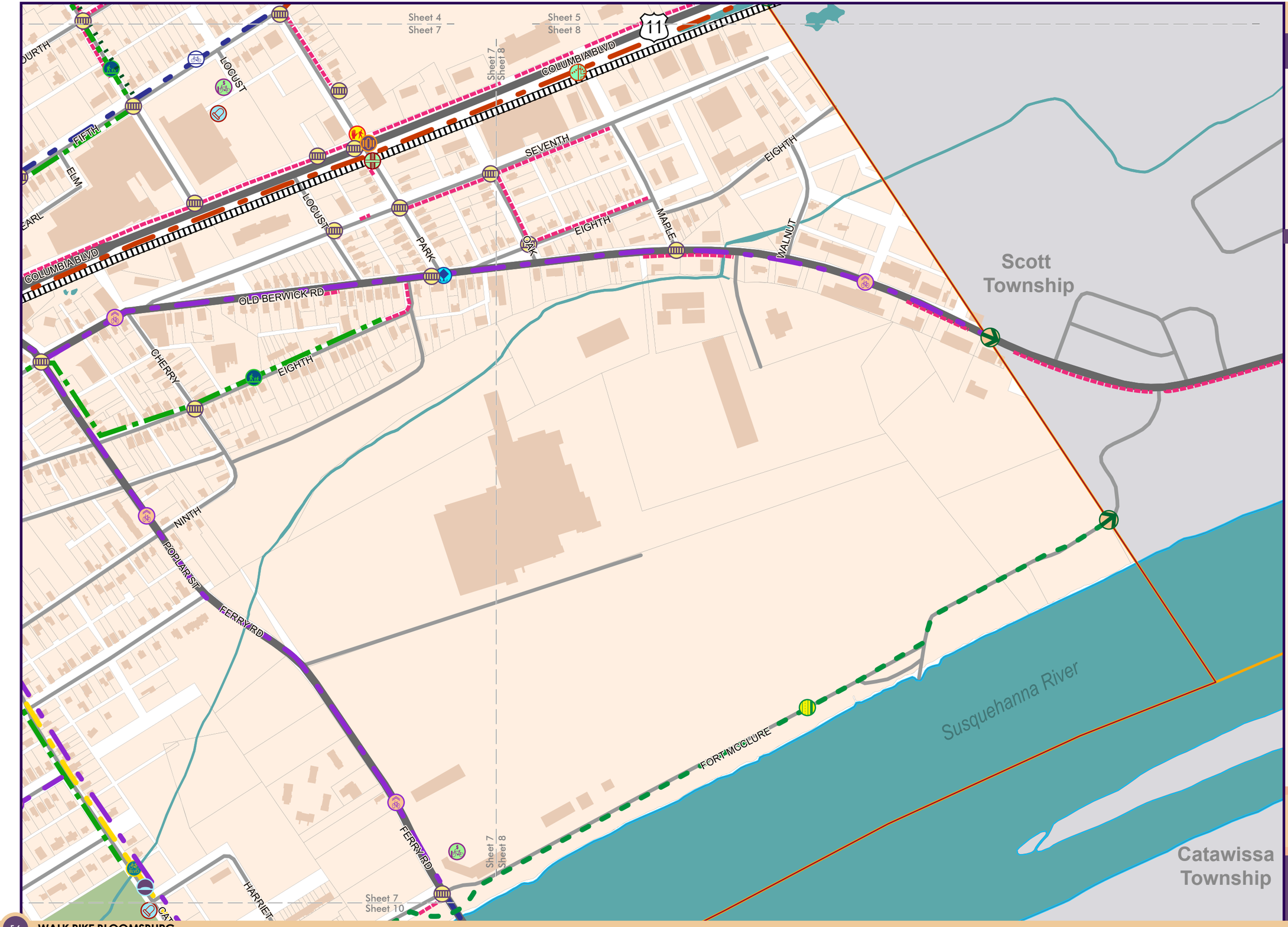

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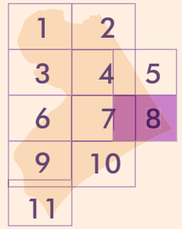

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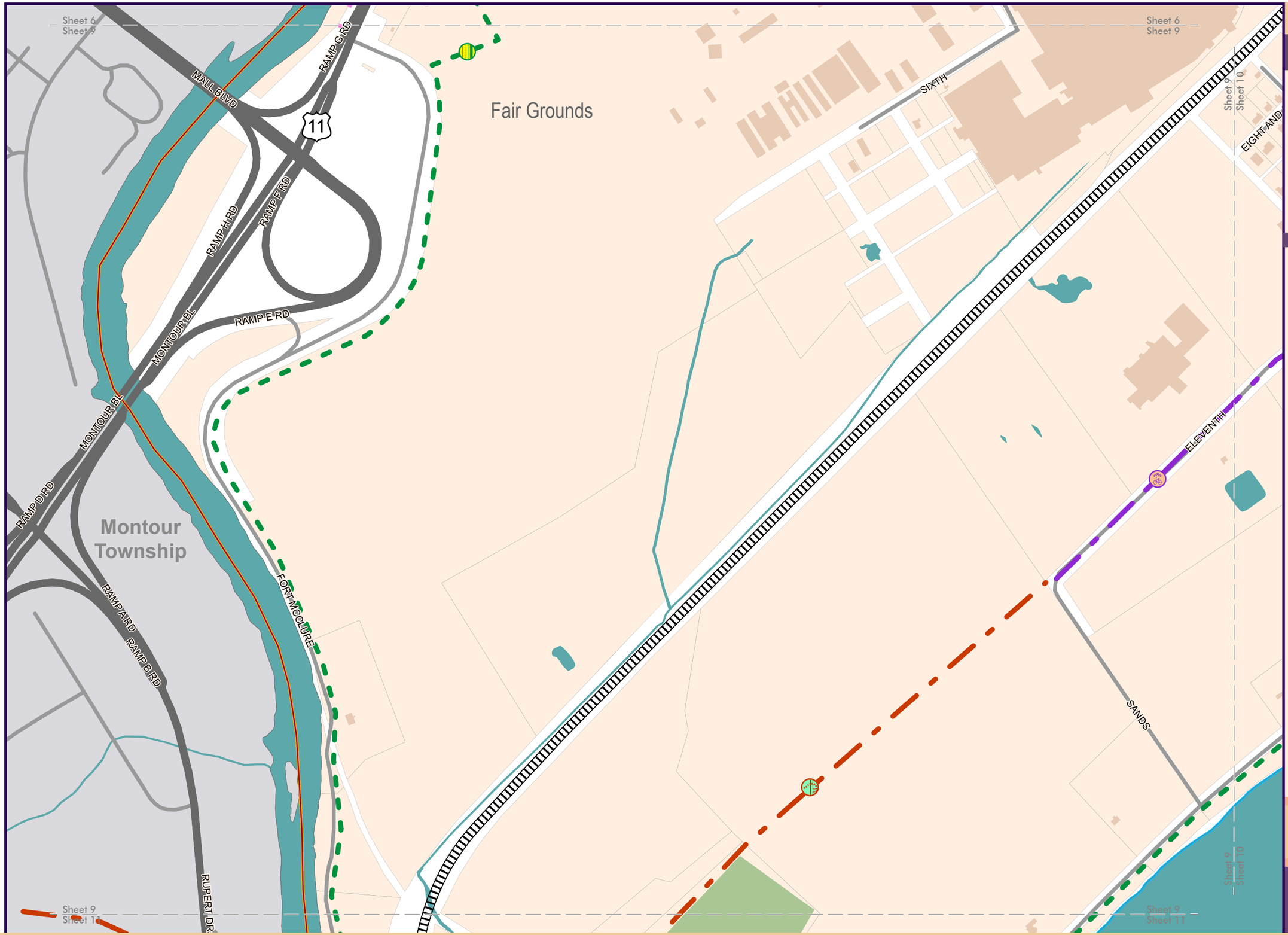

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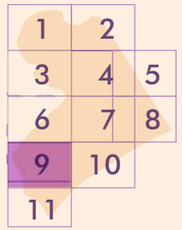

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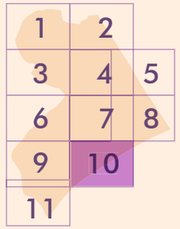

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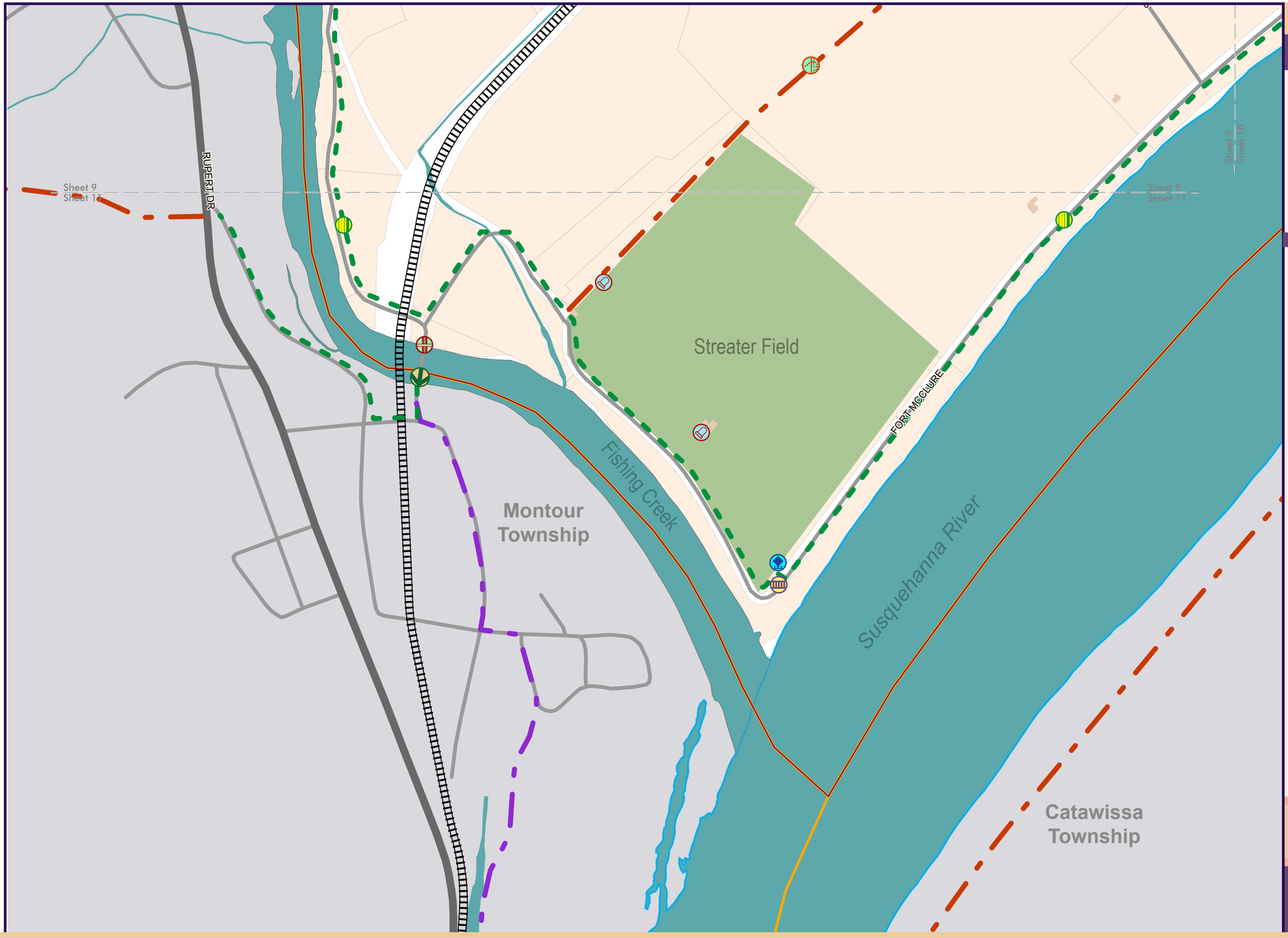
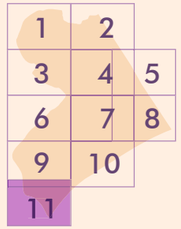
North

0 200′ 400′



RECOMMENDATIONS



Sheet 11 of 11

- Bike Parking
- Decorative Crosswalk
- Crosswalk
- Handman
- Rapid Flashing Beacon
- Ped refuge Island
- Bike Share
- Bike Box
- Multiuse Path
- School Walking Route
- New Sidewalk
- Special Crossing
- Curb Extension
- Sidepath
- Sharrow
- Alley Closure
- One Way Street
- Bike Boulevard
- Bike Lane
- Speed Limit Reduction
- Adjacent Connections
- Speed Cushion
- Speed Table
- Median Through Intersection
- Traffic Light

WALK BIKE BLOOMSBURG

North

0 200′ 400′

Fountain Square

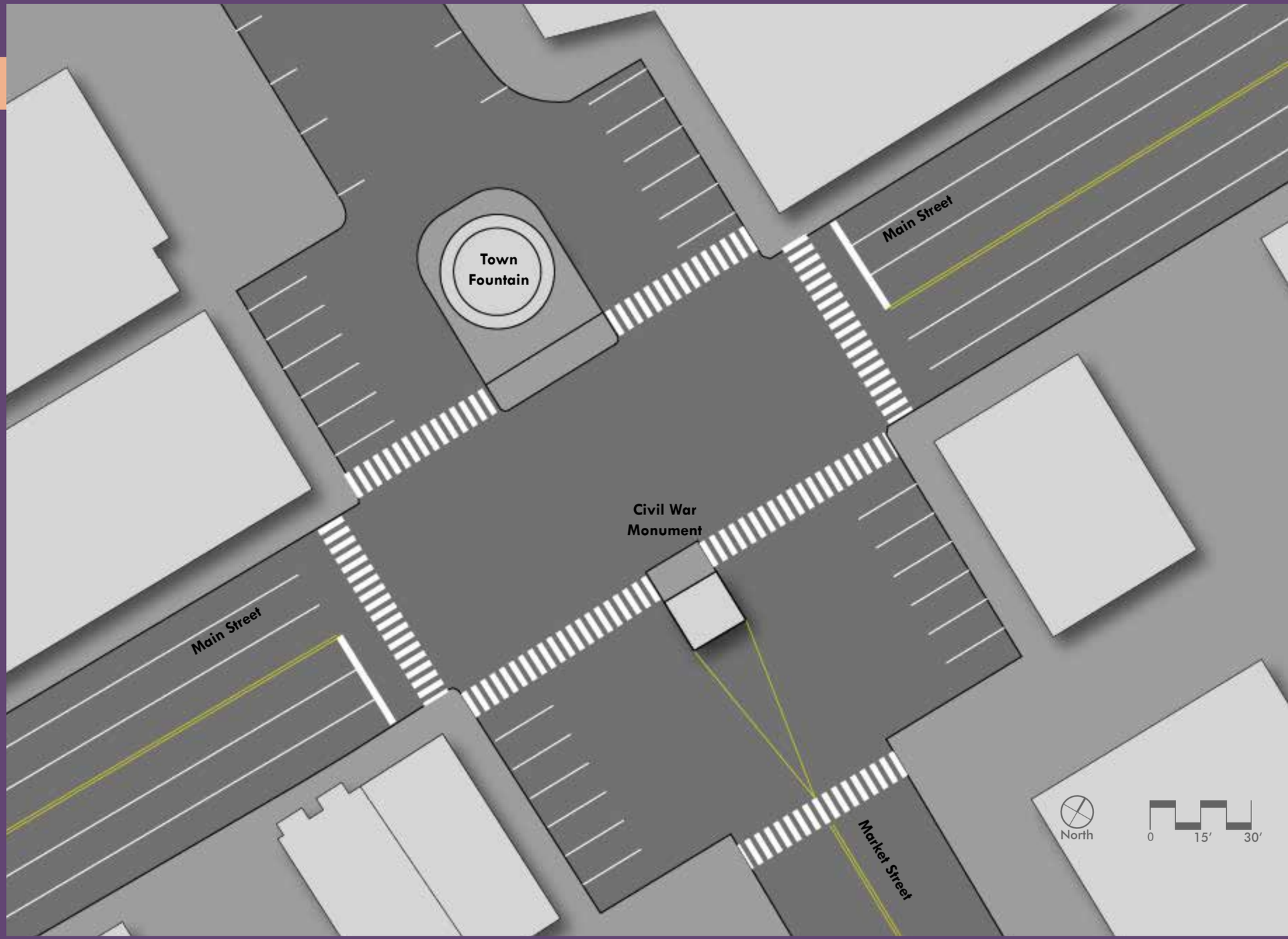
Existing Conditions

Fountain Square was planned as the center of Bloomsburg in 1802; today this important crossroads is at the Intersection of Main Street (State Route 0011) and Market Street.

The town fountain, an iconic landmark for Bloomsburg, is surrounded on all sides by roadways and parking. The fountain is a popular spot for families visiting Bloomsburg University, as well as high school seniors taking prom photographs. Under current conditions, this landmark has only a narrow band of sidewalk around it for pedestrians.

The Civil War monument is opposite the town fountain, and is squeezed on all sides by a sea of asphalt, with minimal space for pedestrians to celebrate and enjoy this landmark.

In its current state, Fountain Square is a space designed and oriented towards the automobile. Pedestrians crossing Main Street and Market Streets must traverse up to four lanes of traffic with long crossing distances that vary from 45 to 60 feet.



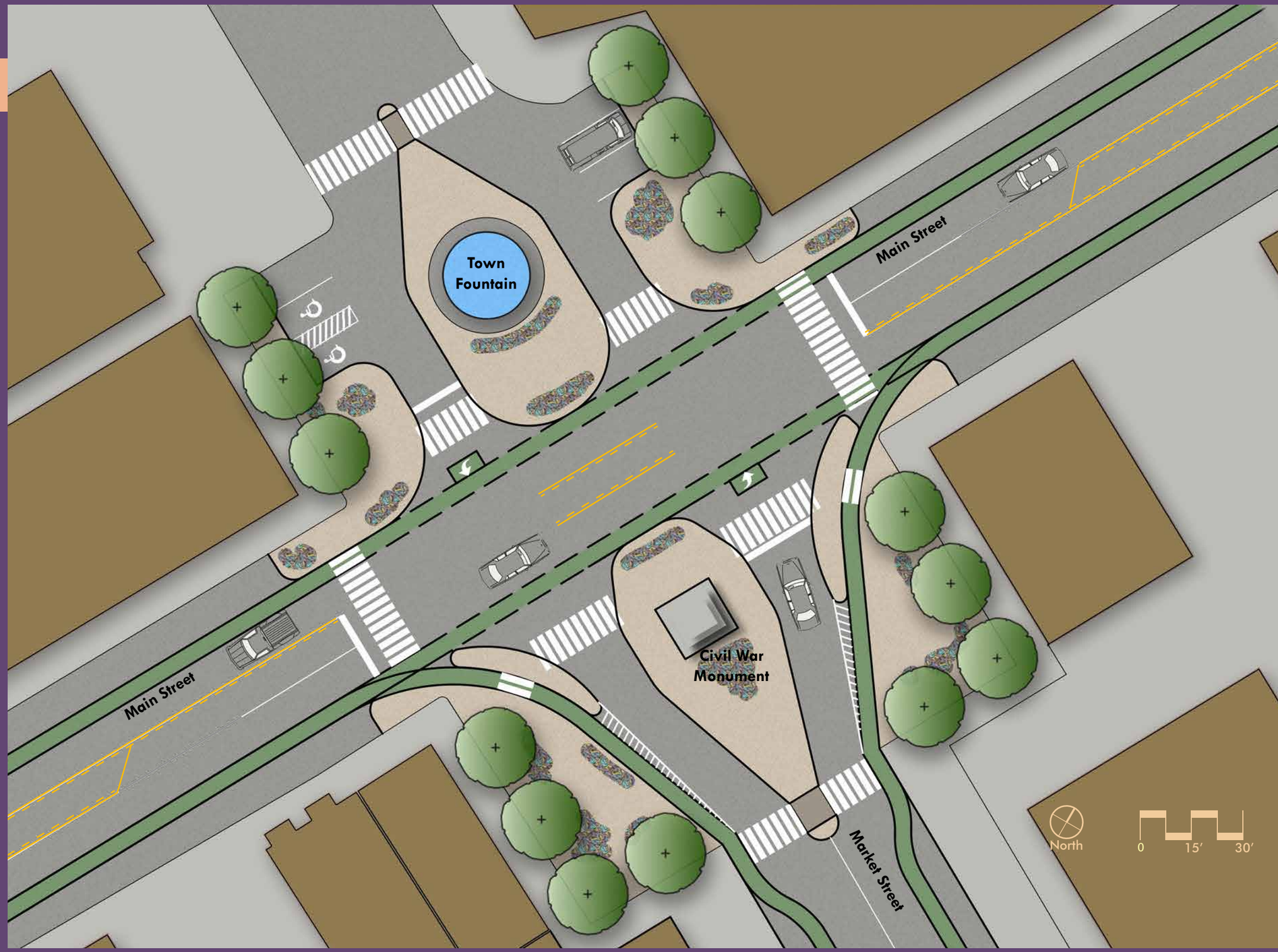
Fountain Square

Proposed Improvements

This conceptual plan reorients Fountain Square for pedestrian and civic use, with an emphasis on the safety of motorists, cyclists, and pedestrians.

Proposed Fountain Square elements include:

- Bike lanes on Main and Market Streets
- Protected Bicycle Intersections
- Bump outs and curb extensions at pedestrian crossing locations
- Expanded pedestrian space around town fountain
- Expanded pedestrian space around the Civil War monument
- Removal of parking in the southern quadrants of the square, replaced with expanded civic and pedestrian space



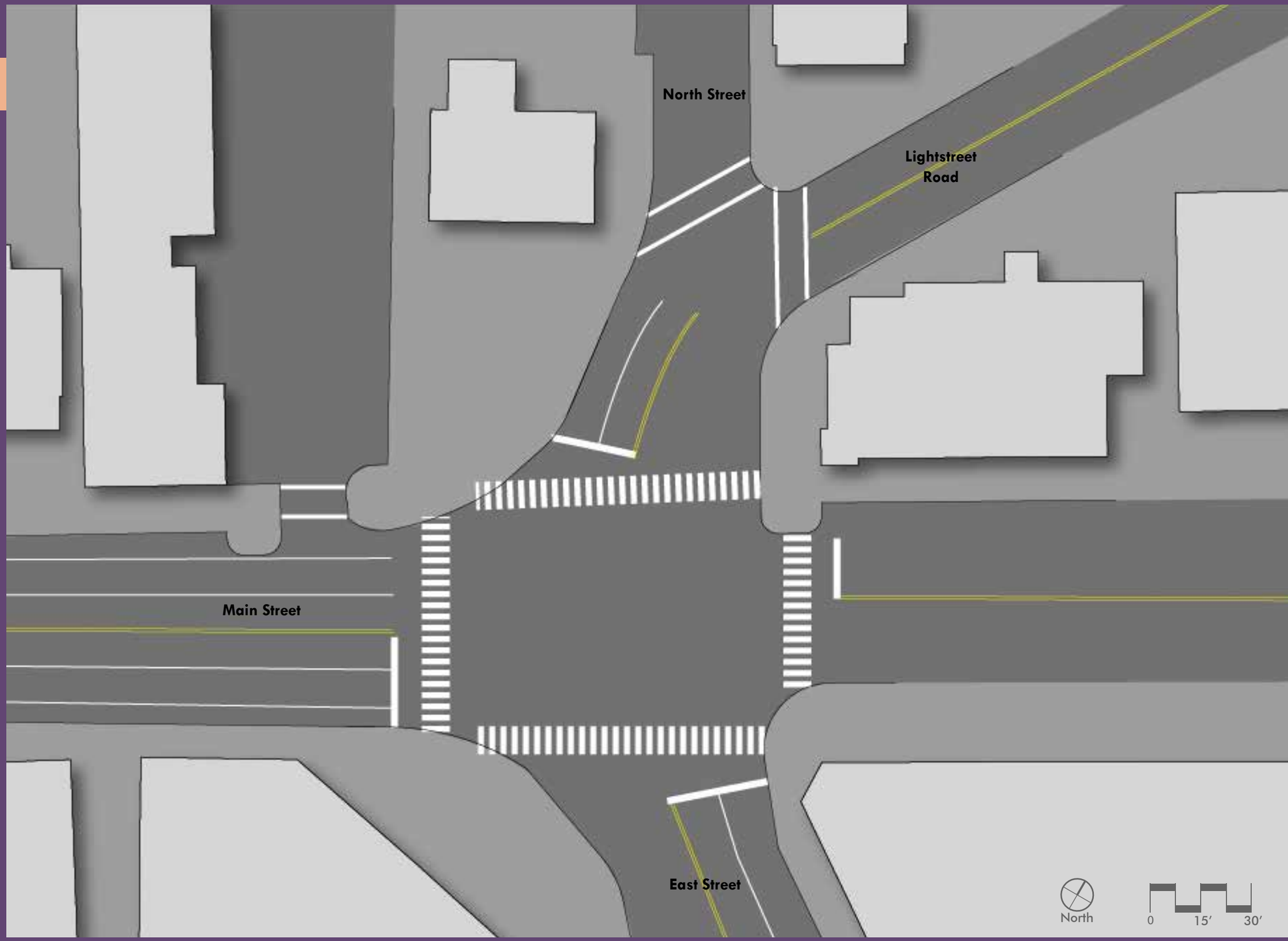
Fountain Square Existing Conditions

Fountain Square Proposed Improvements

Town Hall

Existing Conditions

Under current conditions this intersection is challenging for pedestrians and cyclists. Pedestrians crossing E. Main Street must traverse a 60 foot crosswalk across four lanes of traffic. With current traffic signal timing, pedestrians must be vigilant to watch for motorists that are turning onto Main Street from East Street and Lightstreet Road.

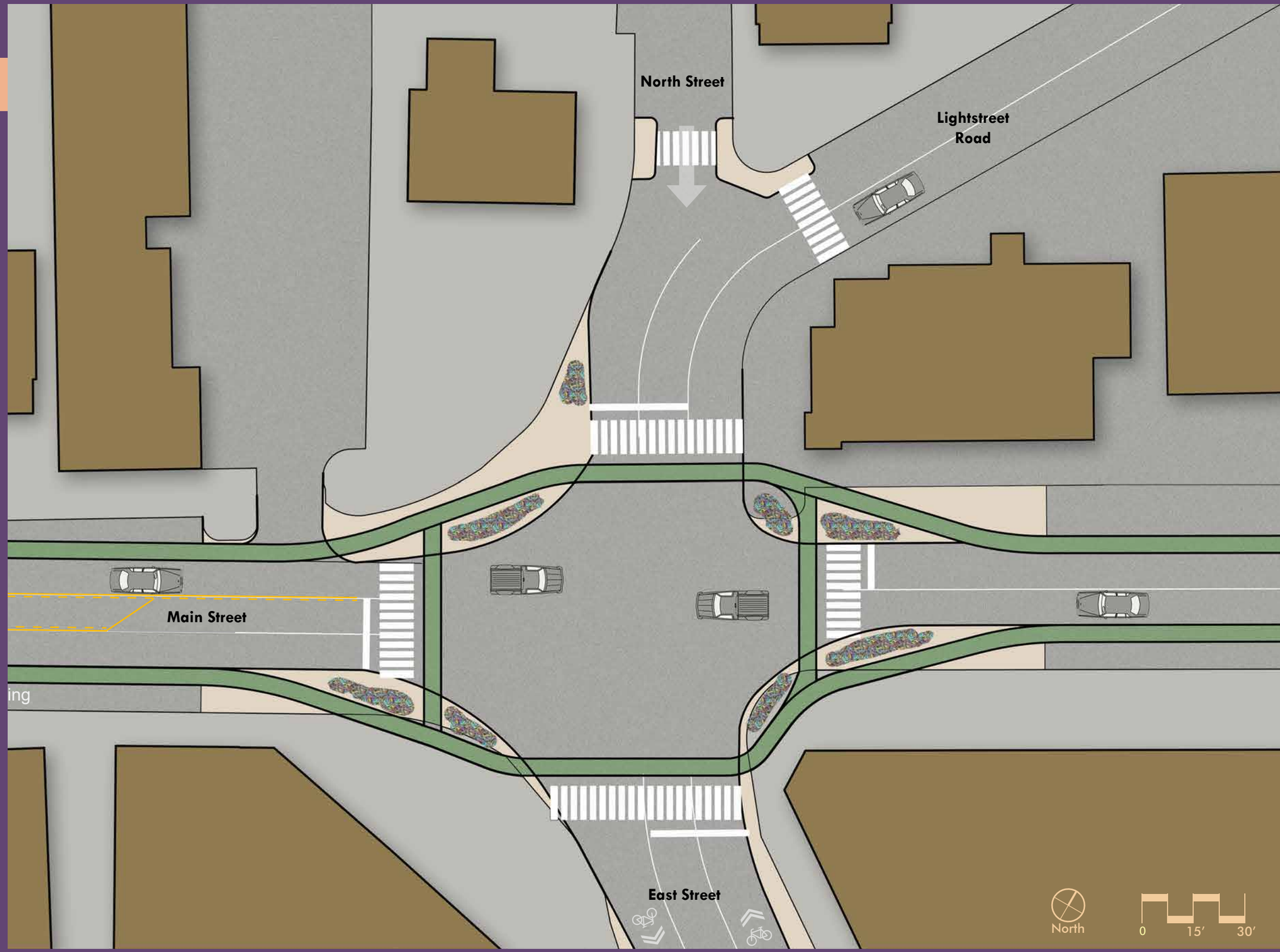


Town Hall

Proposed Improvements

Proposed Town Hall elements include:

- Bike lanes on Main Street
- Sharrows on East Street
- Protected Bicycle Intersections
- Bump outs and curb extensions at pedestrian crossing locations
- Re-timing of traffic signals to include a separate pedestrian crossing phase



Town Hall Existing Conditions

Town Hall Proposed Improvements

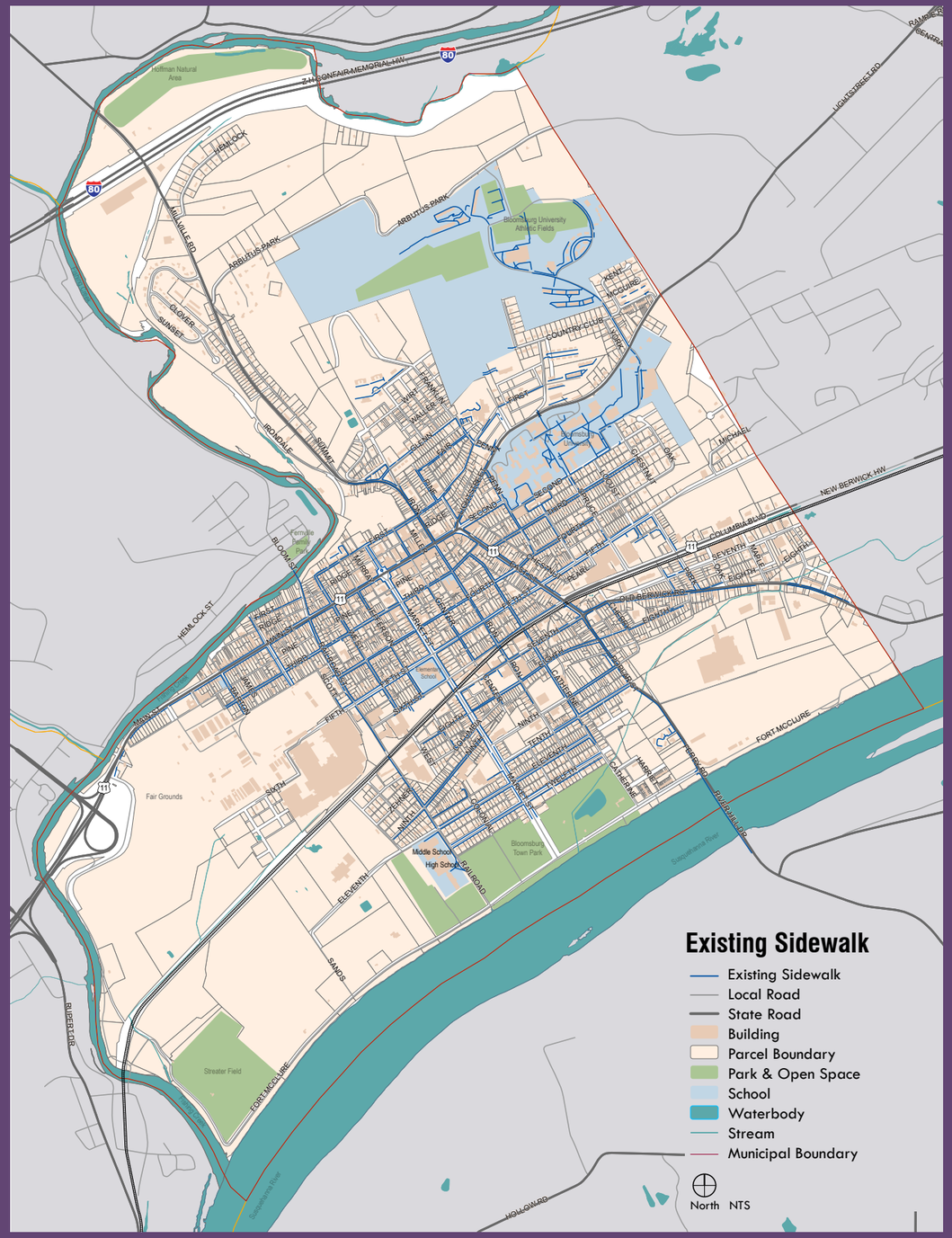
Sidewalk

Sidewalks are basic transportation infrastructure in any village or town. Sidewalks allow pedestrians to safely move between destinations, from home to work, to places of worship and to parks and civic spaces. There is a dense network of sidewalks in and around Bloomsburg's downtown commercial business district, which provide access to the Town's amenities and services. Sidewalk gaps exist in the neighborhoods east of Poplar / East Streets as well as in the north of Bloomsburg along Millville Road.

Sidewalks are proposed along routes that will serve the largest number of Town residents, and improve accessibility to Town destinations such as schools, parks, and businesses. Approximate locations of new sidewalks are based on site reconnaissance, a Town-wide sidewalk inventory completed by the consultants, and input from Town staff and committee meetings.

Image Source: GatlynByrd

- Sidewalk			Sub Total		$ 656,250
New - Concrete (4' Wide)	105,000	SF	$ 6.25	$ 656,250.00	

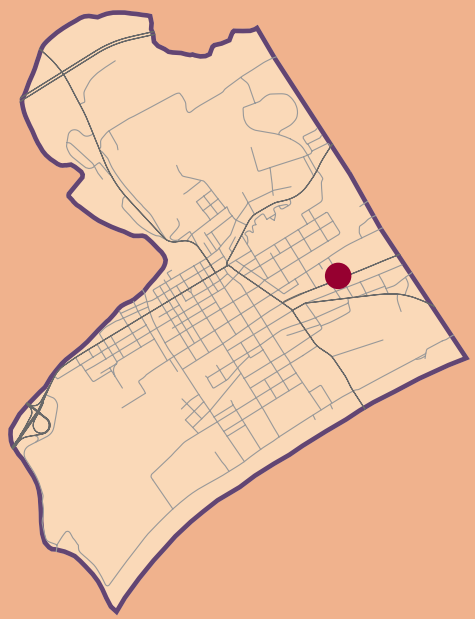


Proposed Sidewalk

- Proposed Sidewalk
- Local Road
- State Road
- Building
- Parcel Boundary
- Park & Open Space
- School
- Waterbody
- Stream
- Municipal Boundary

North NTS

Existing Conditions: Rt. 11



Columbia Boulevard (Route 11) is an important thoroughfare for Bloomsburg and the surrounding area. Along Columbia Boulevard are several shopping centers, including a variety of retail establishments as well as grocery stores.

This roadway is a barrier for pedestrians and cyclists, as there are significant sidewalk gaps along it and there are few north/south crossing locations beyond East Street.

The proposed improvements to Columbia Boulevard on the opposite page show where new sidewalks, (and other improvements such as crosswalks) might be appropriate.

Proposed Improvements: Rt. 11

Continental & Decorative Crosswalk

Crosswalks can be delineated in several ways. The continental crosswalks ("piano keys or "zebra stripes") are the most common type and highly visible crosswalks and are generally preferred by PennDOT and most regulatory agencies. The "keys" or "stripes" can be contained (or not) by another thick white stripe parallel to the direction of pedestrian traffic. Continental crosswalks are generally constructed of thermoplastic materials that is embedded into the asphalt paving and is highly durable, generally with an effective life span of up to ten years (dependent on traffic). In recent years, thermoplastic materials have been preferred to pavers placed in the crosswalks since pavers become loose are subject to damage from snow plows.

When used on state roads, PennDOT engineers must be consulted to approve of decorative crosswalks as some engineers note that decorative crosswalks may potentially distract drivers. The decision to allow or not allow a decorative crosswalk on a state road include levels of traffic or level or service at an intersection, accident history, posted speed limit and other contextual considerations. Similar to sidewalks, crosswalks are proposed to benefit the largest number of residents and establish safe travel corridors to and from the destinations of Bloomsburg.

Image Source: Media D

- Crosswalk **ADA Ramps at Each Intersection*			***Sub Total***		***$ 162,800***
Continental	***88***	***EA***	***$ 1,100.00***	**$ 96,800.00**	
Crosswalk striping, white, 24"					
Decorative	***22***	***EA***	***$ 3,000.00***	**$ 66,000.00**	
Highly visible crosswalk design					

Proposed Crosswalk

- Proposed Crosswalk
- Proposed Decorative Crosswalk
- Local Road
- State Road
- Building
- Parcel Boundary
- Park & Open Space
- School
- Waterbody
- Stream
- Municipal Boundary

North NTS

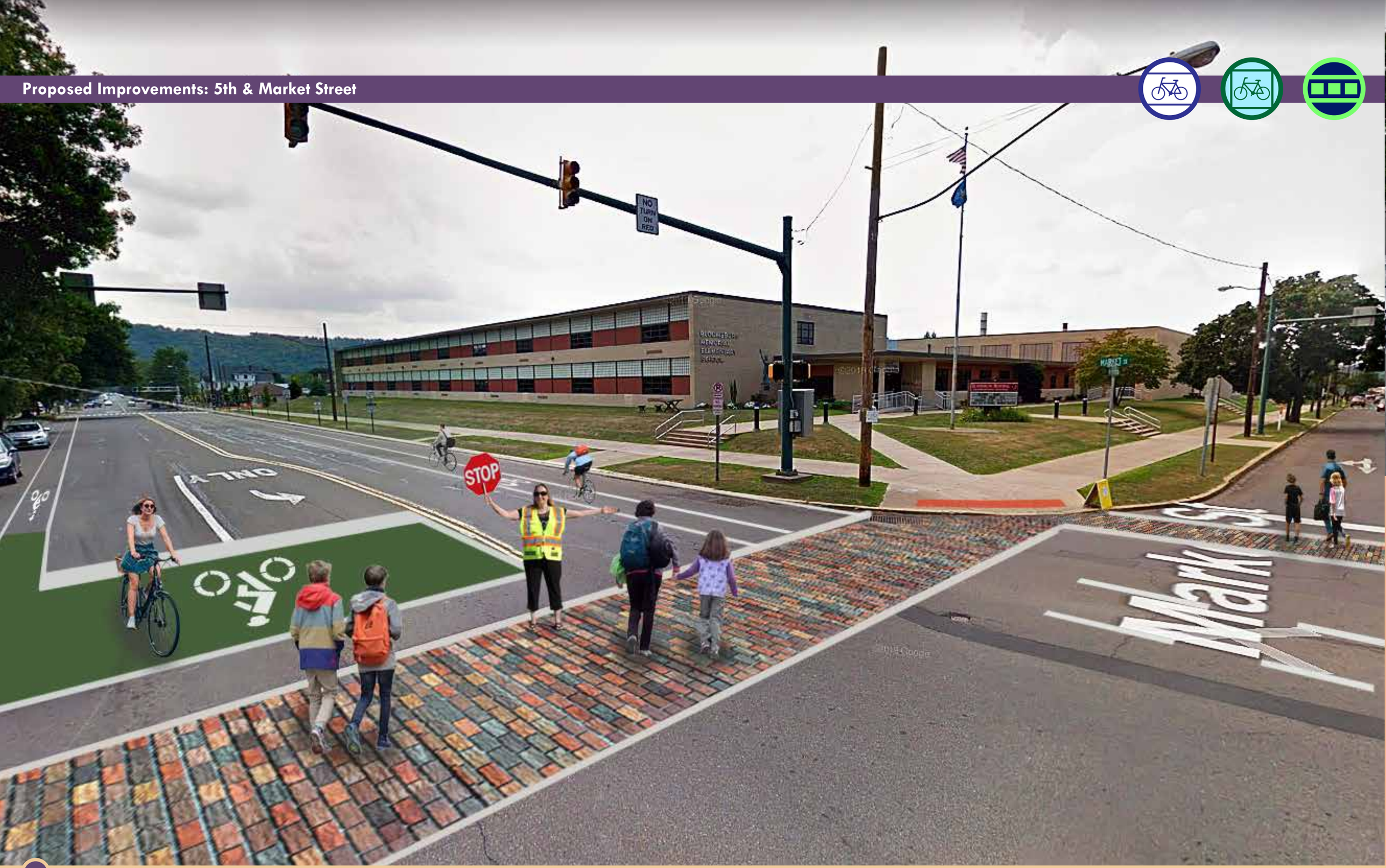
Existing Conditions: 1st & Iron Street

Iron Street is the primary route for motorists traveling north from Bloomsburg. This intersection at 1st and Iron Street currently has ADA (Americans with Disabilities Act) curb cuts, which are an important element of pedestrian infrastructure.

While there are no crosswalks currently, the proposed improvements on the opposite page recommend high-visibility continental crosswalks.

Proposed Improvements: 1st & Iron Street

Proposed Improvements: 5th & Market Street



Existing Conditions: 5th & Market Street

This intersection at 5th and Market Street is an important location for school children walking or biking to the Memorial Elementary School. Currently there are crossing guards at this intersection and 6th and Market Street.

For motorists, the proposed decorative crosswalks increase the visibility of children crossing the street. Proposed bike boxes and bike lanes on Market Street provide infrastructure for cyclists.

This intersection won grant funding for a 2018 application from the PennDOT ARLE (Automated Red Light Enforcement) program. The funding is for full modernization of this traffic signal.

As part of the ongoing improvements to East Street, a rapid flashing beacon will be installed at 6th and Market Streets.

Special Crossing

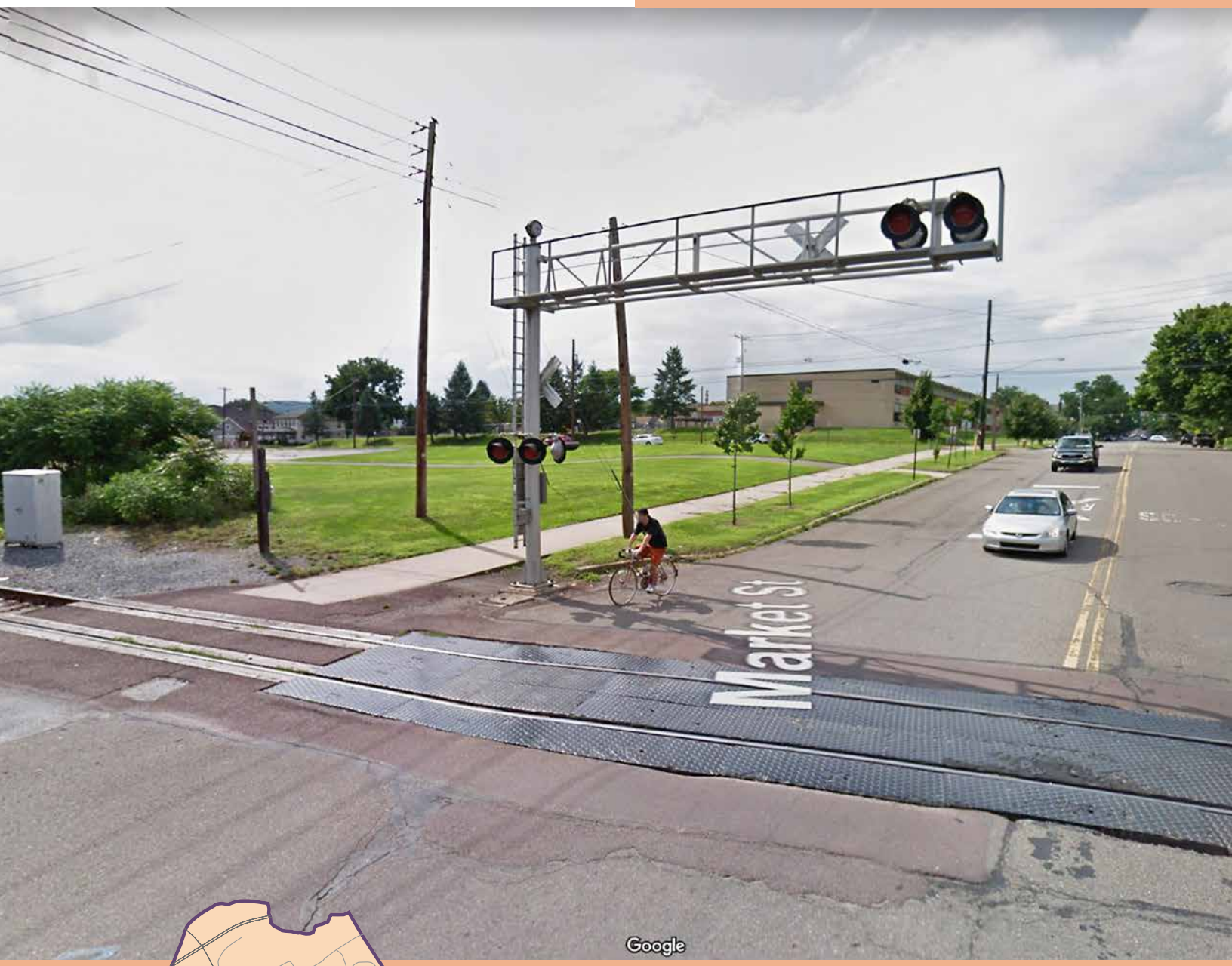
Under current conditions, there are several pedestrian and bicycle crossings at railroad lines in Bloomsburg. Crossings at these intersections are poorly delineated and offer little guidance to pedestrians and bicyclists. This study proposes basic crosswalk improvements at these railroad intersections. Painted lines or constructed platforms may be utilized to delineate pedestrian and bicycle movement at these junctions.

Image Source: City of Bloomington

- Special Crossing			Sub Total		$ 36,400
Railroad and Pedestrian Crossing	7	EA	$ 5,000.00	$ 35,000	
Special Crossing Signage	14	EA	$ 100.00	$ 1,400	

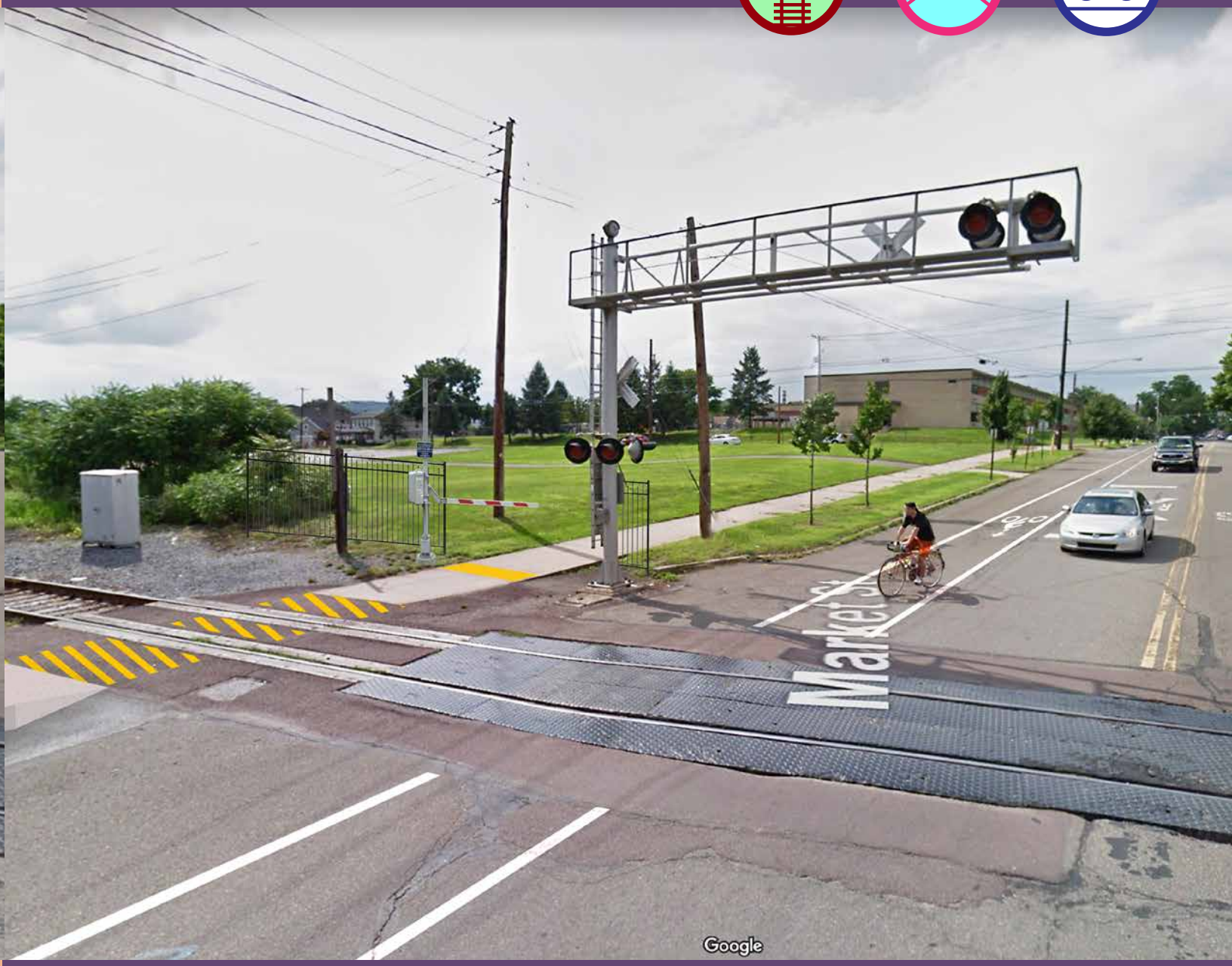

Proposed Crossing
Proposed Special Crossing
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
80
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
CLOVER
SUNSET
IRONDALE
SUMMIT
FRANKLIN
WIRT
WALLER
GLENN
FAIR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
PINE
IRON
RIDGE
LIGHTSTREET
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
11
SEVENTH
MAPLE
EIGHTH
PARK
OAK
EAST ST
PEARL
OLD BERWICK RD
CHERRY
Fernville Family Park
BLOOM ST
MURRAY
MILLER
HEMLOCK ST
MAIN ST
JEFFERSON
WEST
MARKET ST
CENTER
RAILROAD ST
SCOTT
AMES
BARTON
Fishing Creek
Elementary School
SIXTH ST
POPLAR ST
CATHERINE
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Fair Grounds
ZEHNER
COLONIAL
Middle School
High School
RAILROAD
Bloomsburg Town Park
Susquehanna River
SANDS
RUPERT DR
Streater Field

Existing Conditions: Market Street



Market Street is an important corridor that connects the downtown commercial business district to Bloomsburg Town Park and the Susquehanna River. Under current conditions this railroad crossing on Market Street provides little direction for pedestrians or cyclists.

Proposed Improvements: Market Street



The proposed improvements above include painted markings leading to and from the railroad crossing, which can direct pedestrians across the tracks. Fencing and a dedicated pedestrian railroad signal can be used to improve pedestrian safety at this junctions.

Existing Conditions: Catherine Street

Catherine Street is an important north / south corridor that connects the downtown commercial business district with the Town Park and the Susquehanna River, and is a proposed bicycle boulevard. This railroad crossing on Catherine Street provides little direction or infrastructure for pedestrians or cyclists.

Proposed Improvements: Catherine Street

The proposed improvements above include new sidewalk, crosswalk, and flexible delineators. All elements work together to establish a safer pedestrian crossing.

Hand Man

Hand Man pedestrian crossing indicators are well-suited for signalized intersections. These indicators alert pedestrians when and for how long it is safe to cross.

The MUTCD (Manual on Uniform Traffic Control Devices) states that an “upraised hand” or “don’t walk” signal informs pedestrians they cannot enter the street at that moment. A numbered countdown will appear as the signal prepares to change. A steady “walking man” indicates when it is safe for pedestrians to cross the street.

Image Source: Shuttershock

- Hand Man			***Sub Total***		***$ 1,500***
Hand Man Pedestrian Signal	***1***	***EA***	***$ 1,500.00***	**$ 1,500.00**	

Proposed Hand Man

- Proposed Hand Man
- Local Road
- State Road
- Building
- Parcel Boundary
- Park & Open Space
- School
- Waterbody
- Stream
- Municipal Boundary

North NTS

Rapid Flashing Beacon

Rapid flashing beacons, as the name implies, are traffic devices used at non-signalized intersections or at mid-block pedestrian crossings. These beacons alert motorists to the presence of pedestrians crossing the street.

Rapid flashing beacons can be activated in a number of ways. Pedestrian may press a button to activate the light. Beacons may include cameras that detect the presence of a pedestrian about to go through an intersection. Beacons may include infra-red heat sensing devices that sense body heat and activate the beacon.

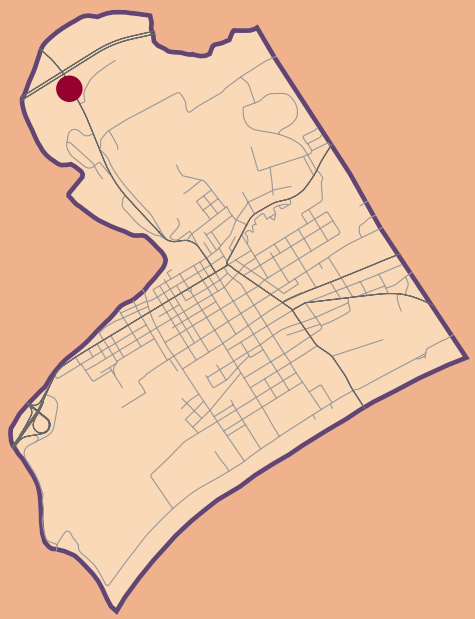
- Rapid Flashing Beacon			***Sub Total***		***$ 90,000***
Rectangular Rapid Flashing Beacon	***6***	***EA***	***$ 15,000.00***	**$ 90,000.00**	

Proposed RFB

- Proposed Rapid Flashing Beacon
- Local Road
- State Road
- Building
- Parcel Boundary
- Park & Open Space
- School
- Waterbody
- Stream
- Municipal Boundary

North NTS

Existing Conditions: Millville Road



The existing Bloomsburg rail trail begins at Railroad Street and stops at Millville Road, adjacent to the Steve Shannon Tire & Auto Center.

Under current conditions this trail has no connections or safe pedestrian or cyclists crossings at or beyond Millville Road.

Proposed Improvements: Millville Road

This report recommends expanding the current Bloomsburg rail trail across Millville Road with connections to

- Bloomsburg University's upper campus
- Proposed Arbutus Road Trail

For this proposed crossing at Millville Road, rapid flashing beacons and continental crosswalks should be used to alert motorists when pedestrians are crossing the road.

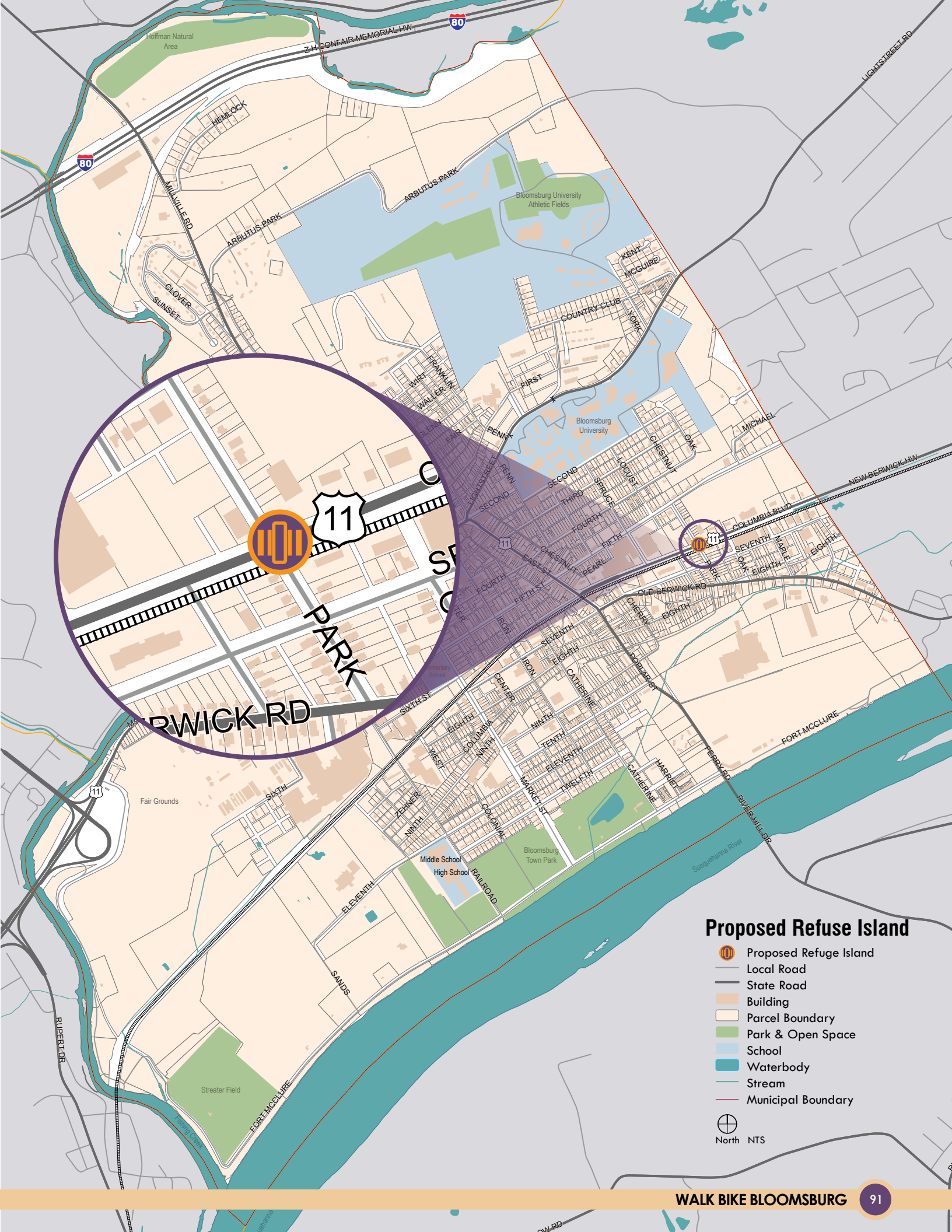
Pedestrian Refuge Island

A pedestrian refuge island is a pedestrian safety device that is used between lanes of opposing traffic. This provides pedestrians a place of "refuge" to pause or rest when crossing busy or wide streets. Pedestrian refuge islands can take many forms - from basic islands to large expanses of pavement seen in larger urban settings. Pedestrian refuge islands should be at least 6 feet wide, but have a preferred width of 8–10 feet. Pedestrian refuge islands may be combined with stormwater management solutions.

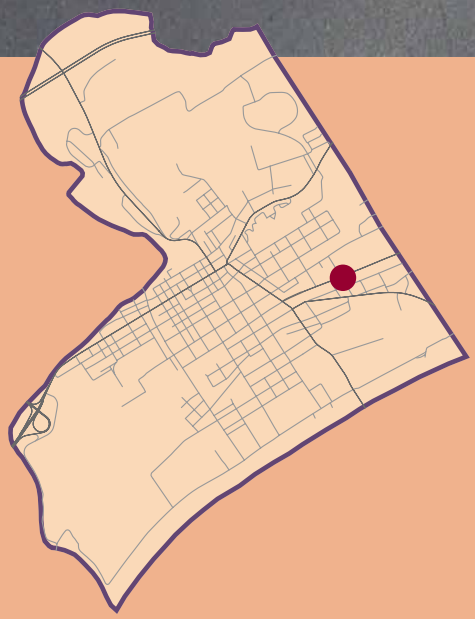
"A pedestrian safety island reduces the exposure time experienced by a pedestrian in the intersection. While safety islands may be used on both wide and narrow streets, they are generally applied at locations where speeds and volumes make crossings prohibitive, or where three or more lanes of traffic make pedestrians feel exposed or unsafe in the intersection." - NACTO Urban Street Guide

Image Source: NACTO

- Pedestrian Refuge Island			***Sub Total***		***$ 15,000***
	1	***EA***	***$ 15,000.00***	**$ 15,000.00**	


Proposed Refuse Island
Proposed Refuge Island
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
11
80
PARK
RWICK RD
Z H CONFAIR MEMORIAL HWY
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
CLOVER
SUNSET
Hoffman Natural Area
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
FIRST
WIRT
FRANKLIN
WALLER
PENN
Bloomsburg University
MICHAEL
LIGHTSTREET
SECOND
THIRD
FOURTH
FIFTH
LOCUST
CHESTNUT
OAK
NEW BERWICK HWY
COLUMBIA BLVD
MAPLE
EIGHTH
SEVENTH
EAST ST
PEARL
PARK
OLD BERWICK RD
CHERRY
IRON
CENTER
CATHERINE
POPLAR ST
SIXTH ST
NINTH
TENTH
ELEVENTH
TWELFTH
WEST
COLUMBIA
MARKET ST
COLONIAL
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Susquehanna River
Fair Grounds
Middle School
High School
RAILROAD
Bloomsburg Town Park
Streater Field
SANDS
RUPERT DR
Fishing Creek

Existing Conditions: Park St. & Columbia Blvd.



Columbia Boulevard is an important roadway within Bloomsburg. As mentioned previously, there are several shopping centers along this roadway, including a variety of retail establishments and grocery stores.

The intersection pictured above, Park Street and Columbia Boulevard, is one of the few locations where pedestrian improvements are practical.

Proposed Improvements: Park St. & Columbia Blvd.

Improved pedestrian facilities at this intersection can improve access to the commercial establishments along Columbia Boulevard for residents that live south of the roadway.

The proposed improvements include: pedestrian refuge island, crosswalks, and sidewalk improvements.

Bloomsburg received funding through a 2019 grant application from the PennDOT ARLE (Automated Red Light Enforcement) program to modernize the traffic signal at this intersection.

Bike Share

The first bike-sharing programs began fifty years ago in Europe, and began to develop in the mid-2000's in the United States. Today bike share programs are commonly found within in cities, towns, and Universities across the country.

The elements of a bike share include station-based bikes and payment systems. Renters may pay for their bike rental through an interactive kiosk or through an application on a mobile phone.

There are two bike share options:

1. Municipal purchase of bike fleet and docks. With this option, Bloomsburg would purchase docking stations and bicycles, and user rental fees pay contribute to upkeep. This could also be accomplished via a more low-tech approach, such as at Town Hall where municipal staff are present on weekdays.

2. Partner with bike share companies such as Zagster. With this option, a private company like Zagster would charge Bloomsburg a fee, provide a fleet of bicycles and docking stations. Challenges with this will be the small size of a program in Bloomsburg, however, the University student population could remedy this.

Bike share programs might also receive grants from local transportation authorities, municipal governments, or private companies.

Princeton University Bike Share - a partnership with Zagster

- Bike Share (or by Vendor)			***Sub Total***		***$ 600,000***
Station with 6 Bikes & 11 docks	***12***	***EA***	***$ 50,000.00***	**$ 600,000.00**	


Proposed Bike Share
Proposed Bike Share
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North NTS
Hoffman Natural Area
Bloomsburg University Athletic Fields
Bloomsburg University
Fernville Family Park
Elementary School
Fair Grounds
Middle School
High School
Bloomsburg Town Park
Streater Field
Susquehanna River
Fishing Creek
Z H CONFAIR MEMORIAL HW
LIGHTSTREET RD
NEW BERWICK HW
COLUMBIA BLVD
OLD BERWICK RD
FORT MCCLURE
RIVER HILL DR
RUPERT DR
MILLVILLE RD
ARBUTUS PARK
COUNTRY CLUB
MAIN ST
MARKET ST
EAST ST
POPLAR ST
FERRY RD
RAILROAD ST
HEMLOCK ST
BLOOM ST

Bike Box

A Bike box is connected to a bicycle lane, and is a designated area ahead of traffic at a signalized intersection. Bike boxes are designed to provide bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase. As with all new pedestrian and bicycle infrastructure, motorist education is needed.

Image Source: WBUR

Image Source: NACTO

- Bike Box			***Sub Total***		***$ 5,600***
	14	***EA***	***$ 400.00***	**$ 5,600.00**	


Proposed Bike Box
Proposed Bike Box
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
80
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
CLOVER
SUNSET
IRONDALE
SUMMIT
FRANKLIN
WIRT
WALLER
GLENN
FAIR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
PINE
IRON
RIDGE
LIGHTSTREET
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
11
SEVENTH
MAPLE
EIGHTH
PARK
OAK
PEARL
EAST ST
CHESTNUT
OLD BERWICK RD
CHERRY
Fernville Family Park
BLOOM ST
HEMLOCK ST
MURRAY
MILLER
MARKET ST
CENTER
JEFFERSON
WEST
MAIN ST
RAILROAD ST
SCOTT
AMES
BARTON
Fishing Creek
Elementary School
SIXTH ST
POPLAR ST
CATHERINE
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Fair Grounds
ZEHNER
COLONIAL
Middle School
High School
RAILROAD
Bloomsburg Town Park
Susquehanna River
ELEVENTH
SANDS
RUPERT DR
Streater Field
FORT MCCLURE
Fishing Creek

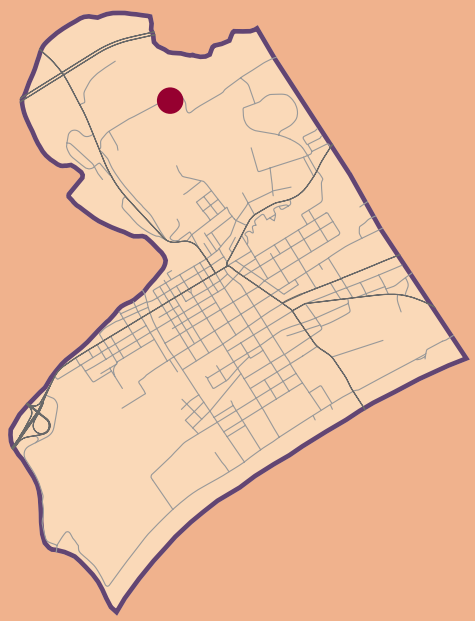
Multi-Use Trail

Multi-Use Trails are generally a minimum of 10 feet in width and may be designed at widths of up to 14 feet for high-volume trails. In rare instances where space is limited, trails may be installed at an 8 foot width. Such trails can be paved with asphalt or stone dust / stone screenings. Users include cyclists, roller-bladers, skateboarders, runners, joggers, and pedestrians. Motorized wheelchairs for handicapped users are also permitted.

- Multi Use Trail ***Asphalt Trail 10' Width***			***Sub Total***		***$ 4,410,000***
Mayor's 5th Street Trail'	***0.35***	***MI***	***$ 1,000,000.00***	**$ 350,000.00**	
Route 11 Trail	***0.9***	***MI***	***$ 1,000,000.00***	**$ 900,000.00**	
Franklin Street to Arbutus Trail	***0.4***	***MI***	***$ 1,000,000.00***	**$ 400,000.00**	
Arbutus Trail	***2.75***	***MI***	***$ 1,000,000.00***	**$ 2,750,000.00**	
Highland Drive Trail	***0.01***	***MI***	***$ 1,000,000.00***	**$ 10,000.00**	


Proposed Multi-Use Trail
Proposed Multi-Use Trail
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North NTS
Hoffman Natural Area
ZH SONFAIR MEMORIAL HW
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
LIGHTSTREET RD
GLOVER
SUNSET
IRONDALE
SUMMIT
WIRT
FRANKLIN
WALLER
GLENN
FAIR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
THIRD
SECOND
FOURTH
FIFTH
NEW BERWICK HW
COLUMBIA BLVD
SEVENTH
MAPLE
EIGHTH
PARK
PEARL
EAST ST
OLD BERWICK RD
CHERRY
Fernville Family Park
BLOOM ST
HEMLOCK ST
MURRAY
RIDGE
PINE
MILLER
IRON
LIGHTSTREET
MAIN ST
JEFFERSON
MARKET ST
CENTER
FIFTH ST
Elementary School
WEST
RAILROAD ST
SCOTT
JAMES ST
BARTON
Fishing Creek
SIXTH ST
CATHERINE
PORT AR ST
FORT MCCLURE
Fair Grounds
SIXTH
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
FERRY RD
RIVER HILL DR
ZEHNER
COLONIAL
Middle School
High School
RAILROAD
Bloomsburg Town Park
Susquehanna River
SANDS
RUPERT DR
Streater Field
FORT MCCLURE

Existing Conditions: Arbutus Trail

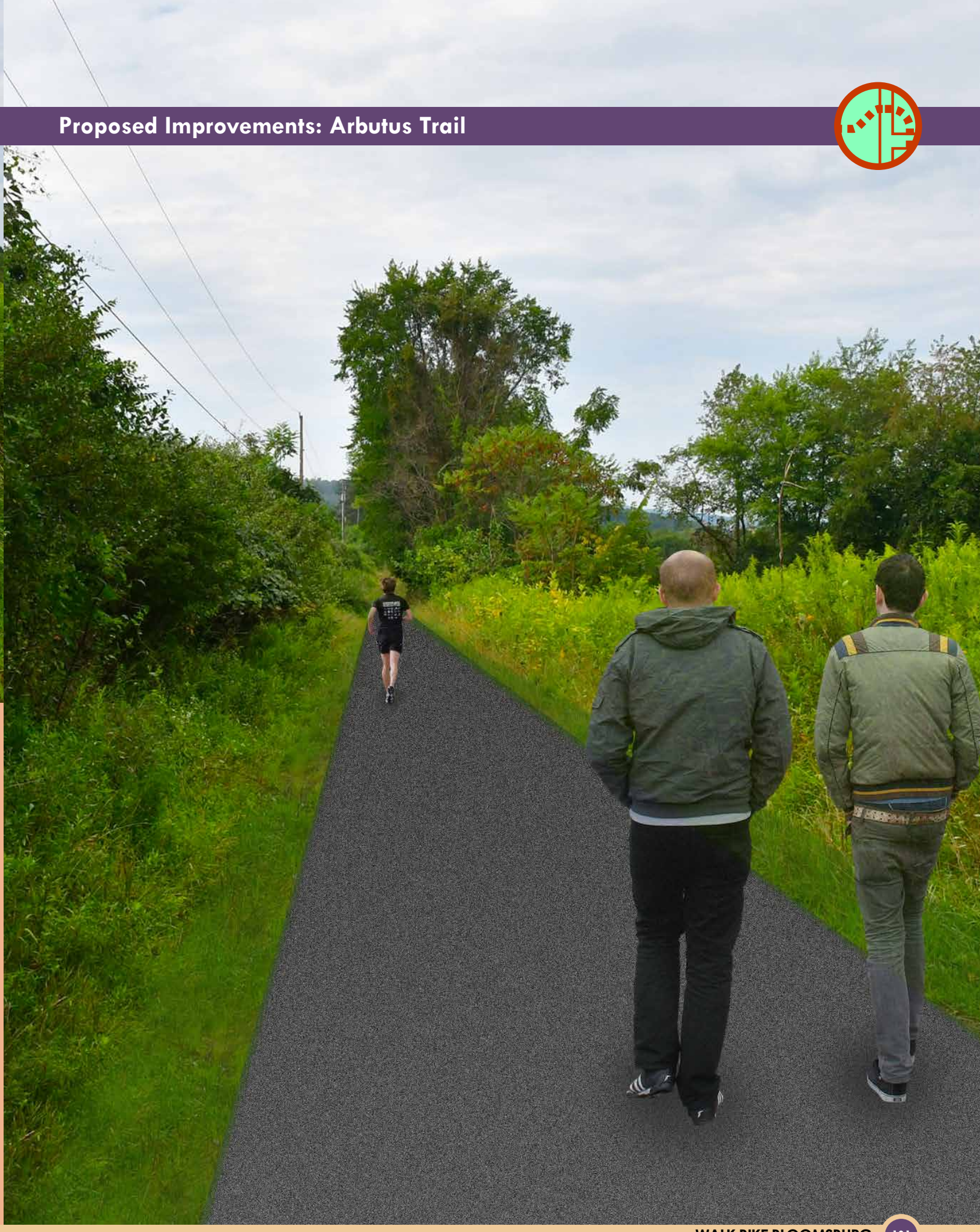


There is an unused portion of Arbutus Road in the northern part of Bloomsburg (pictured above). The roadway alignment is clearly visible, and has potential to become an important multi-modal connection for the residents of Bloomsburg.

The implementation of this trail can connect the residents in the north of the municipality to Bloomsburg University's upper campus, and provide access to the existing rail-trail.

Bloomsburg University can be an important partner in this proposed project.

Proposed Improvements: Arbutus Trail



Existing Conditions: E. 5th Street

Under current conditions, there are no pedestrian or bicycle facilities that connect the residents along 5th Street in Bloomsburg (and further east in Scott Township) back to downtown Bloomsburg or the commercial locations along Columbia Boulevard.

This multi-use 'Mayor's Trail' pictured on the following page has the potential to benefit these residences along 5th Street, that under current conditions require an automobile to reach downtown Bloomsburg or Scott Township.

Scott Township can be an important partner in continuing the Mayor's Trail east beyond the borders of Bloomsburg.

Proposed Improvements: E. 5th Street (Mayor's Trail)

School Walking Route

The Bloomsburg school walking route is designed as a safer route for children walking and biking to the schools within Town. Along this route there is a high concentration of proposed pedestrian and bicycle improvements, including: crosswalks, bike lanes, bike boulevards, special crossings, and signage, and more.

- School Walking Route			***Sub Total***		***$ 3,000***
School Walking Route Signage	***30***	***EA***	***$ 100.00***	**$ 3,000.00**	


Proposed School Route
Proposed School Walking Route
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Bloomsburg University Athletic Fields
Bloomsburg University
Bloomsburg Town Park
Fernville Family Park
Hoffman Natural Area
Fair Grounds
Streater Field
Elementary School
Middle School
High School
Susquehanna River
Fishing Creek
Z.H. CONFAIR MEMORIAL HWY
ARBUTUS PARK
MILLVILLE RD
HEMLOCK
SUNSET
CLOVER
IRONDALE
SUMMIT
COUNTRY CLUB
KENT
MCGUIRE
YORK
LIGHTSTREET RD
NEW BERWICK HWY
COLUMBIA BLVD
OLD BERWICK RD
MAIN ST
HEMLOCK ST
BLOOM ST
FORT MCCLURE
FERRY RD
RIVER HILL DR
RUPERT DR
SANDS
RAILROAD
MICHAEL
OAK
CHESTNUT
LOCUST
SYCAMORE
PENN
LIGHTSTREET
FRANKLIN
WIRT
WALLER
GLENN
FAR
PENN
IRON
RIDGE
PINE
FIRST
SECOND
THIRD
FOURTH
FIFTH
SIXTH
SEVENTH
EIGHTH
NINTH
TENTH
ELEVENTH
TWELFTH
MARKET ST
CENTER
MILLER
EAST ST
PEARL
PARK
MAPLE
OAK
CHERRY
POPLAR ST
CATHERINE
HARRIET
COLONIAL
COLUMBIA
WEST
MURRAY
JEFFERSON
RAILROAD ST
SCOTT
AMES
BARTON
OVER

Bump Out

Bump outs and curb extensions are used extensively in urban and village areas as pedestrian safety enhancements and as traffic calming devices for motor vehicles. A bump out extends the sidewalk area into the cartway. Bump outs reduce the distance a pedestrian must navigate to cross the street.

Bump outs can be completely paved like a sidewalk, or can be partially paved and partially planted. When they are partially planted they can add to the street's ability to absorb and infiltrate stormwater. These are sometimes referred to as rain gardens. This allows the soil to cleanse groundwater of oil and gasoline residue before the water infiltrates into groundwater.

Bump outs must be considered when plowing for snow and they must accommodate existing drainage patterns.

Image Source: NACTO

- Bump Out			***Sub Total***		***$ 91,000***
	7	***EA***	***$ 13,000.00***	**$ 91,000.00**	

Proposed Bump Out

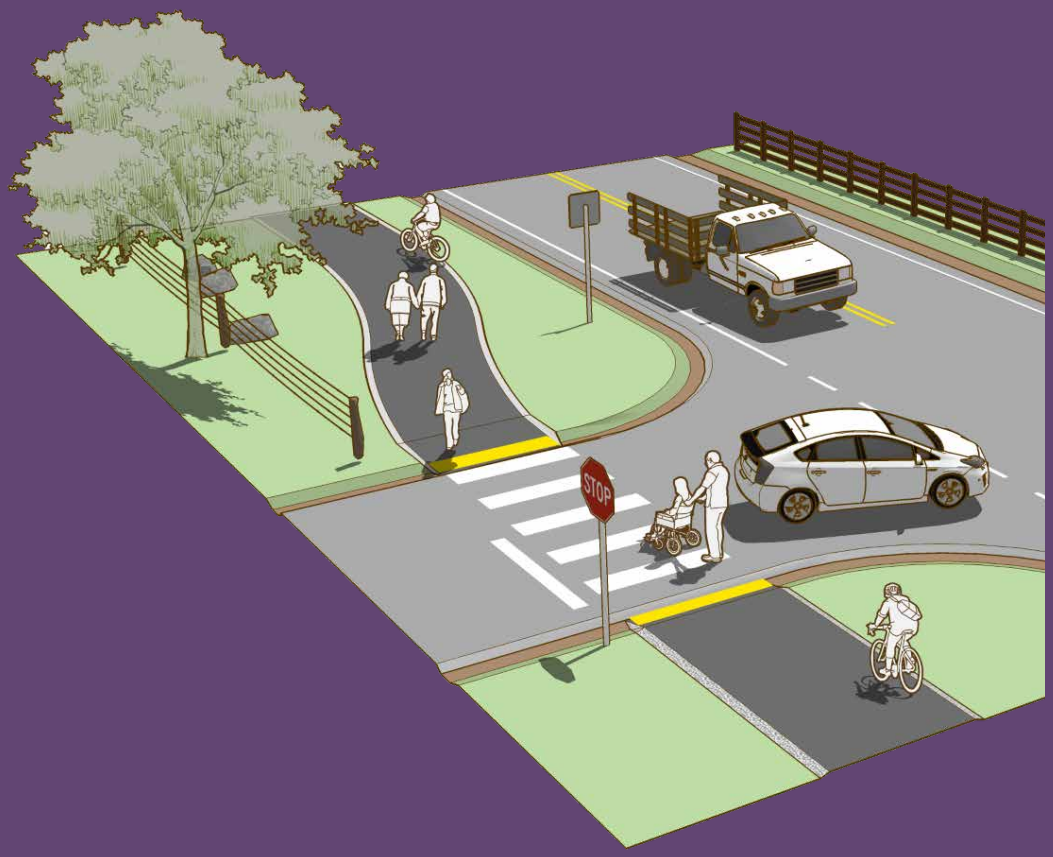
- Proposed Bump Out
- Local Road
- State Road
- Building
- Parcel Boundary
- Park & Open Space
- School
- Waterbody
- Stream
- Municipal Boundary

North NTS

Sidepath

A sidepath is a bidirectional shared use path located immediately adjacent and parallel to a roadway. Sidepaths can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities in heavy traffic environments, allow for reduced roadway crossing distances, and maintain rural and small town community character.

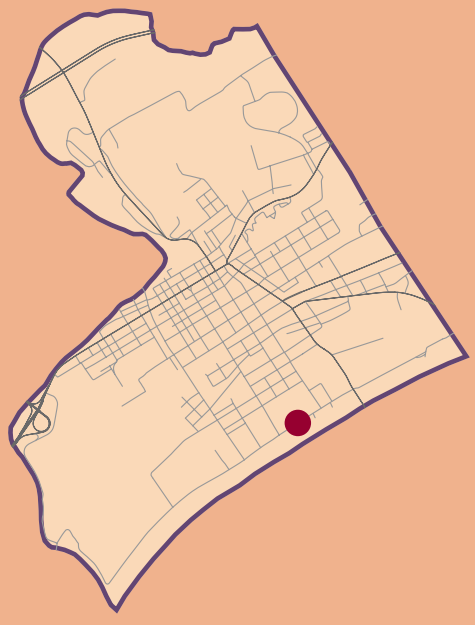
Sidepaths are typically 5'-8' in width and constructed with asphalt. A side path can encourage bicycling and walking in areas where high-volume traffic and/or high speed traffic might otherwise discourage such activity.



***- Side Path** Asphalt Trail 8' Width*			*Sub Total*		*$ 5,100,000*
Connections to Rail Trail	*0.35*	*MI*	*$ 1,000,000.00*	$ 350,000.00	
Franklin Street Side Path	*0.27*	*MI*	*$ 1,000,000.00*	$ 270,000.00	
Fort McClure Boulevard Trail	*4.25*	*MI*	*$ 1,000,000.00*	$ 4,250,000.00	
E 6th Street Side Path	*0.23*	*MI*	*$ 1,000,000.00*	$ 230,000.00	

Proposed Sidepath
Proposed Sidepath
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North NTS
Hoffman Natural Area
Bloomsburg University Athletic Fields
Bloomsburg University
Fernville Family Park
Fair Grounds
Elementary School
Middle School
High School
Bloomsburg Town Park
Streater Field
Susquehanna River
Fishing Creek

Existing Conditions: Fort McClure Boulevard



Fort McClure Boulevard is an important roadway which runs parallel to the Susquehanna River. This roadway connects users to Bloomsburg Town Park, Streater Field, and the downtown commercial business district, and more.

Motorists, cyclists, and pedestrians currently all use the same road, which can create a stressful and potentially unsafe multi-modal experience.

Proposed Improvements: Fort McClure Boulevard

In the photo-simulation above, a 5 to 8 foot sidepath establishes a designated space for pedestrians and cyclists. In addition to increasing the safety for all user groups along this route, this sidepath in combination with crosswalks to Bloomsburg Town Park, gives users better access to the Susquehanna River.

This improvement is in line with proposed improvements previously delineated in the Bloomsburg Town Park Master Plan.

Existing Conditions: 6th Street

Under current conditions, the area between 6th Street and the railroad is a vacant space often used for the parking or warehousing of vehicles.

There is an opportunity in this space to create a pedestrian and bicycle sidepath that can connect this important central location to other proposed multi modal infrastructure along Columbia Boulevard / Route 11. This proposed path can serve as a useful transportation link and can be landscaped to create a much more pleasant linear green space.

Proposed Improvements: 6th Street

Sharrow Route

Sharrows are pavement markings designed to alert motorists to the presence of cyclists in the roadway. A sharrow is a combination of an arrow and a cyclist. This includes the concept of "share the road", thus the "sharrow".

Sharrows are typically appropriate for roadways with posted speeds no higher than 25 MPH. Several of Bloomsburg's roadways fall into this category. Through conversations at public meetings and site visits, the consultant team determined which roadways would best serve as sharrow routes. Bike routes with sharrows may have accompanying signage; however they are not required to include signage.

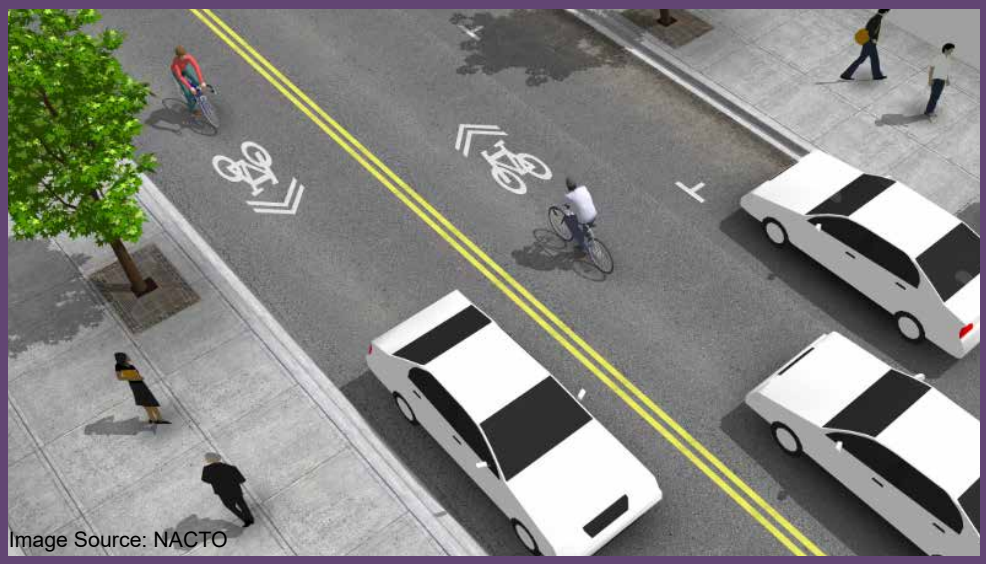


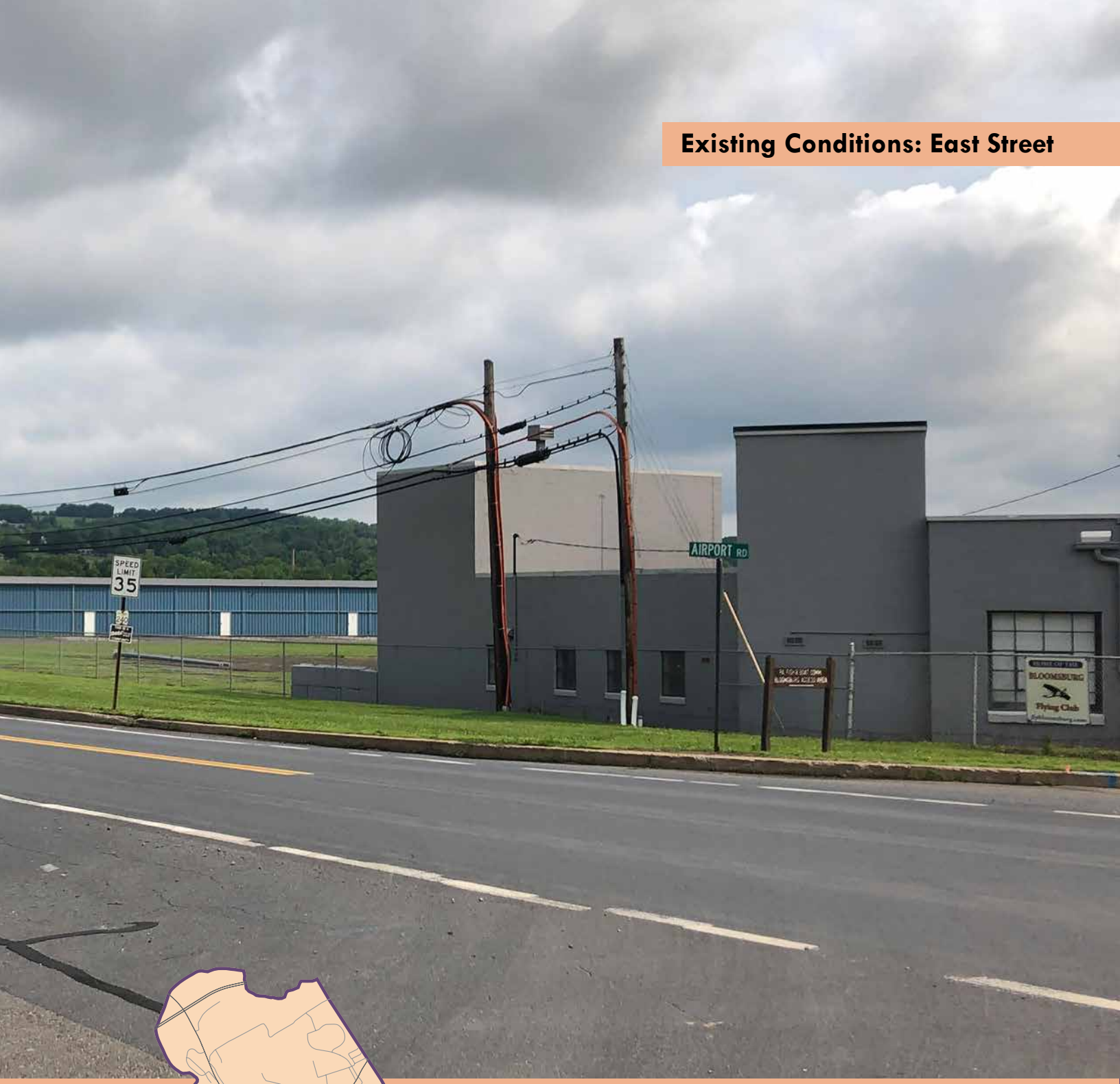
Image Source: NACTO

Image Source: NACTO

- Sharrow			***Sub Total***		***$ 50,300***
Sharrow On-Road Bike Route	***25,150***	***LF***	***$ 2.00***	**$ 50,300.00**	


Proposed Sharrow
Proposed Sharrow Route
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Bloomsburg University Athletic Fields
Bloomsburg University
Fernville Family Park
Fair Grounds
Elementary School
Middle School
High School
Bloomsburg Town Park
Streater Field
Susquehanna River
Fishing Creek
Hemlock Creek
ZH SONFAIR MEMORIAL HW
I-80
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
GLOVER
SUNSET
IRONDALE
SUMMIT
WIRT
FRANKLIN
WALLER
GLENN
FAIR
PENN
FIRST
COUNTRY CLUB
KENT
MCGUIRE
YORK
LIGHTSTREET RD
MICHAEL
OAK
CHESTNUT
LOCUST
SECOND
THIRD
SPRUCE
FOURTH
FIFTH
PEARL
PARK
SEVENTH
MAPLE
EIGHTH
NEW BERWICK HW
COLUMBIA BLVD
OLD BERWICK RD
CHERRY
PINE
IRON
RIDGE
MILLER
MURRAY
MARKET ST
CENTER
JEFFERSON
WEST
MAIN ST
RAILROAD ST
SCOTT
BARTON
JAMES
HEMLOCK ST
BLOOM ST
EAST ST
SIXTH ST
CATHERINE
FORT ST
FERRY RD
FORT MCCLURE
RIVER HILL DR
HARRIET
TENTH
ELEVENTH
TWELFTH
NINTH
COLONIAL
COLUMBIA
SANDS
RAILROAD
RUPERT DR
111
80

Existing Conditions: East Street



Under current conditions, while major improvements are ongoing to establish sidewalks along East Street, there is no current or planned bicycle infrastructure for this roadway as per current PennDOT plans.

East Street is an important connection between Main Street and Columbia Boulevard, as well as a connection to Fort McClure Boulevard and the Susquehanna River.

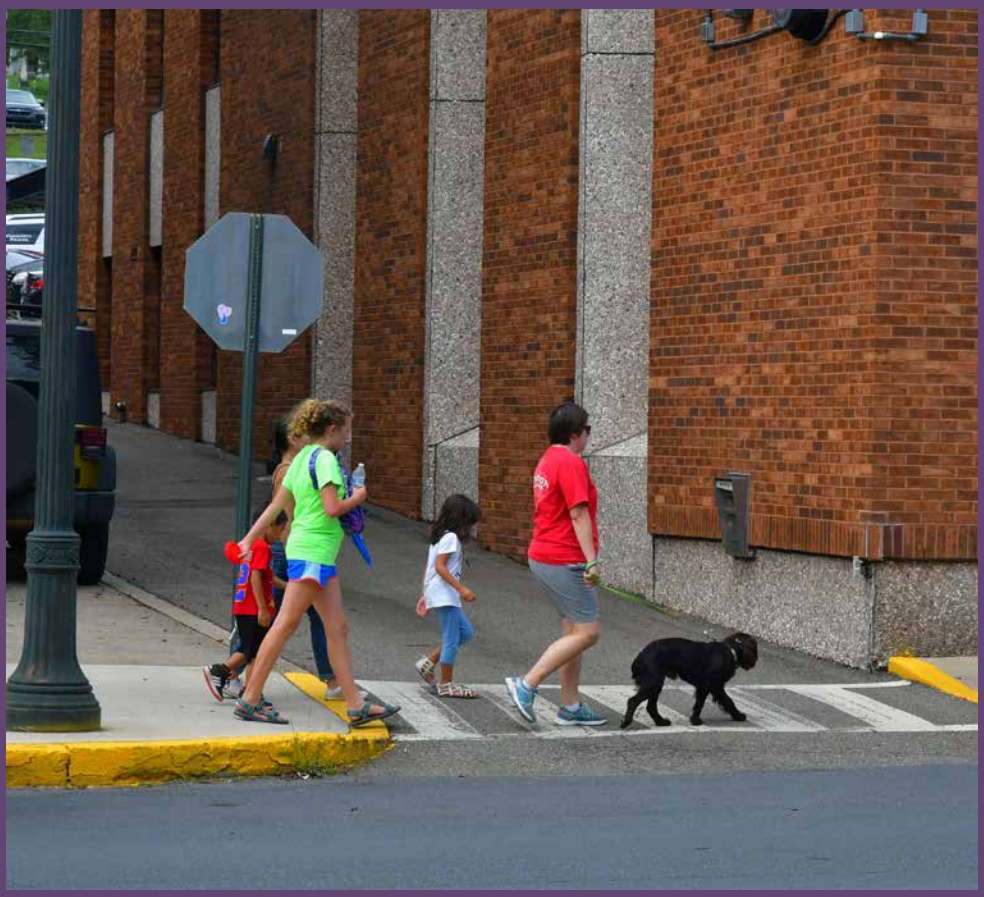
Proposed Improvements: East Street

In the photo-simulation above, painted “share the road markers”, otherwise known as sharrows, are proposed to be implemented along East Street to increase the visibility of cyclists to motorists.

Alley Changes

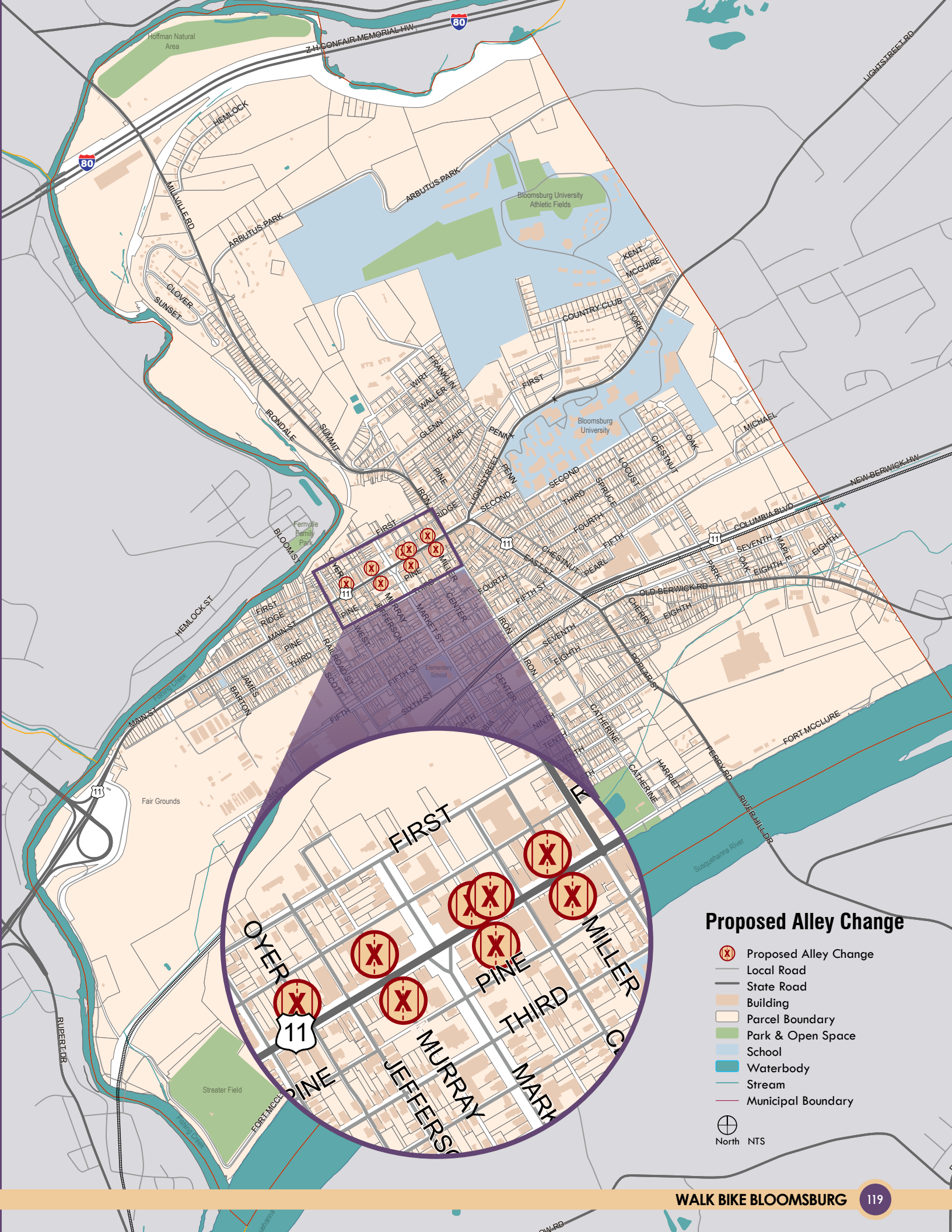
There are eight alleys in the downtown commercial business district that allow motorists to enter onto Main Street (example pictured below). In these locations, sight lines for motorists entering Main Street are limited by buildings, and there is potential conflict for pedestrians crossing the alleys on Main Street sidewalks.

This study recommends changing these alleys to one way streets with travel heading away from Main Street. This improvement can be implemented with appropriate one-way signage and new crosswalks for pedestrians at the locations noted on the following page.



Existing Alley, Main Street

- Alley Changes			***Sub Total***		***$ 6,400***
Alley Change Signage	***64***	***EA***	***$ 100.00***	**$ 6,400.00**	


Proposed Alley Change
Proposed Alley Change
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
CLOVER
SUNSET
IRONDALE
SUMMIT
WIRT
FRANKLIN
WALLER
GLENN
FAIR
PENN AV
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
PINE
IRON
RIDGE
LIGHTSTREET
PENN
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
SEVENTH
EIGHTH
MAPLE
PARK
OAK
EAST ST
PEARL
OLD BERWICK RD
CHERRY
POPLAR ST
CATHERINE
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Susquehanna River
Fernville Family Park
BLOOM ST
HEMLOCK ST
MAIN ST
MILL ST
MURRAY
JEFFERSON
MARKET ST
CENTER
RAILROAD ST
SCOTT
BARTON
Elementary School
Fishing Creek
Fair Grounds
Streater Field
RUPERT DR
FORT MCCLURE
11
80

Existing Conditions: Murray Avenue

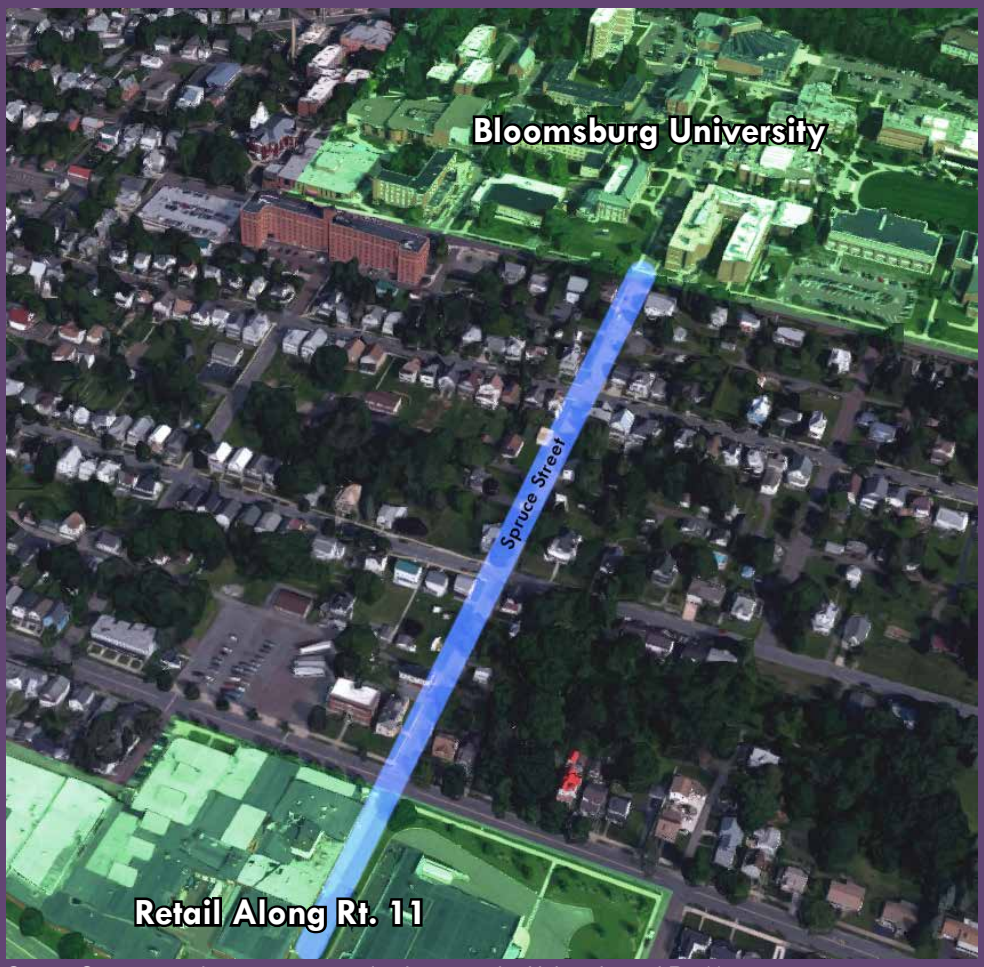
Proposed Improvements: Murray Avenue

One-Way Street

There are two locations within Bloomsburg where it may be appropriate to turn currently two-way traffic to one way traffic. These locations are North Street and Spruce Street.

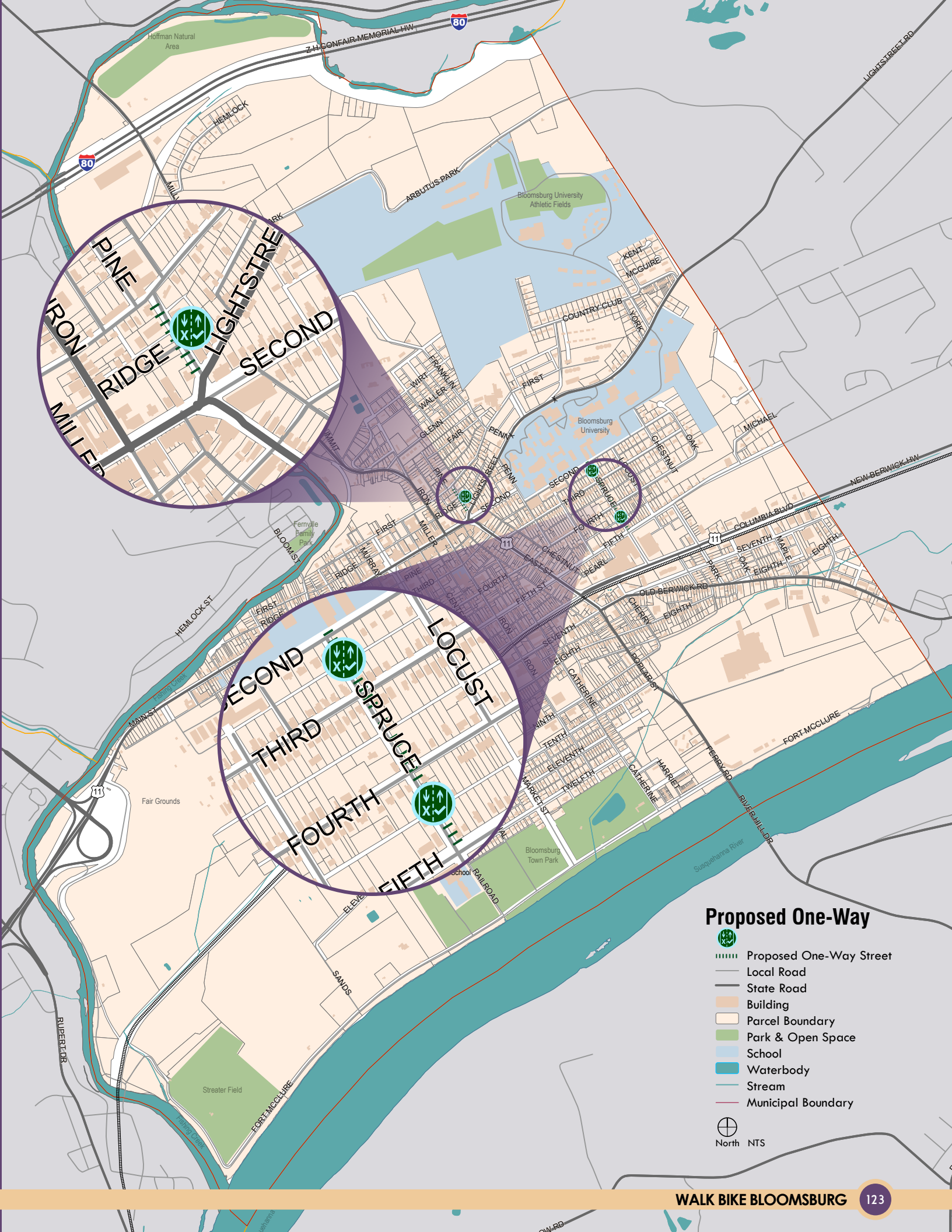
This modification at North Street near town hall can improve traffic flow and interactions at this busy intersection, by eliminating North Street traffic entering this intersection.

Modification of Spruce Street to one-way can create a space for pedestrians on this steep roadway. This is an important connection for University students from campus to the businesses of Columbia Blvd.



Spruce Street as an important connection between the University and Rt. 11

- One-Way Street			Sub Total		$ 17,350
North Street					
Pavement Marking	425	LF	$ 2.00	$ 850.00	
Signage	9	EA	$ 100.00	$ 900.00	
Spruce Street					
Pavement Marking	1,200	LF	$ 2.00	$ 2,400.00	
Delineators	1,200	LF	$ 11.00	$ 13,200.00	


PINE
IRON
RIDGE
MILLER
LIGHTSTREET
SECOND
SECOND
THIRD
LOCUST
SPRUCE
FOURTH
FIFTH
Proposed One-Way
Proposed One-Way Street
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS

Existing Conditions: Spruce Street

Spruce Street is an important roadway that provides a clear connection between Bloomsburg University and the retail establishments along at the bottom of the hill along Columbia Boulevard.

This is one of the steepest residential streets in Bloomsburg and currently has minimal sidewalks or other pedestrian infrastructure.

Proposed Improvements: Spruce Street

In the photo-simulation above, Spruce Street is re-imagined as a one-way street downhill to accommodate a pedestrian zone built from paint and flexible delineators. The benefit of using these materials as compared to asphalt or concrete - is that they may be implemented relatively quickly and can be more easily modified or removed.

Bicycle Boulevard

Bicycle boulevards are chosen for streets with low traffic volumes and speeds. Boulevards are designated and designed to give bicycle travel priority. Bicycle boulevards use pavement markings, speed tables, and speed cushions to a create safe, convenient bicycle route. The removal of stop signs along the boulevard prevent lost bicycle momentum at each intersection.

Many of these treatments benefit cyclists and also help improve safety for all road users.

Image from: Reconnect Rochester

- Bicycle Boulevard			*Sub Total*		*$ 20,950*
Railroad Street Bicycle Boulevard					
Sharrow On-Road Bike Route	*5,400*	*LF*	*$ 2.00*	$ 10,800.00	
Stop Sign Removal	*15*	*EA*	*$ 150.00*	$ 2,250.00	
Catherine Street Bicycle Boulevard					
Sharrow On-Road Bike Route	*3,200*	*LF*	*$ 2.00*	$ 6,400.00	
Stop Sign Removal	*10*	*EA*	*$ 150.00*	$ 1,500.00	


Proposed Bike Boulevard
Proposed Bicycle Boulevard
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
80
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
CLOVER
SUNSET
IRONDALE
SUMMIT
WIRT
WALLER
FRANKLIN
GLENN
FAIR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
PINE
IRON
RIDGE
LIGHTSTREET
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
11
SEVENTH
MAPLE
EIGHTH
PARK
OAK
EAST ST
PEARL
OLD BERWICK RD
CHERRY
Fernville Family Park
BLOOM ST
MURRAY
MILLER
HEMLOCK ST
MAIN ST
JEFFERSON
WEST
MARKET ST
CENTER
RAILROAD ST
SCOTT
AMES
BARTON
Elementary School
SIXTH ST
POPLAR ST
CATHERINE
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Fishing Creek
Fair Grounds
ZEHNER
COLONIAL
Middle School
High School
RAILROAD
Bloomsburg Town Park
Susquehanna River
SANDS
RUPERT DR
Streater Field

Bicycle Lane

Bicycle lanes are designed to create corridors of increased safety, separated from motorists through the use of pavement markings, striping, and signage. Bike lanes enable cyclists to ride at a comfortable speed *"without interference from prevailing traffic conditions and facilitate predictable behavior and movements between bicyclists and motorists."* - NACTO Bloomsburg contains several roadways that are wide enough for bicycle lanes, including Main Street, Market Street, and 5th Street.

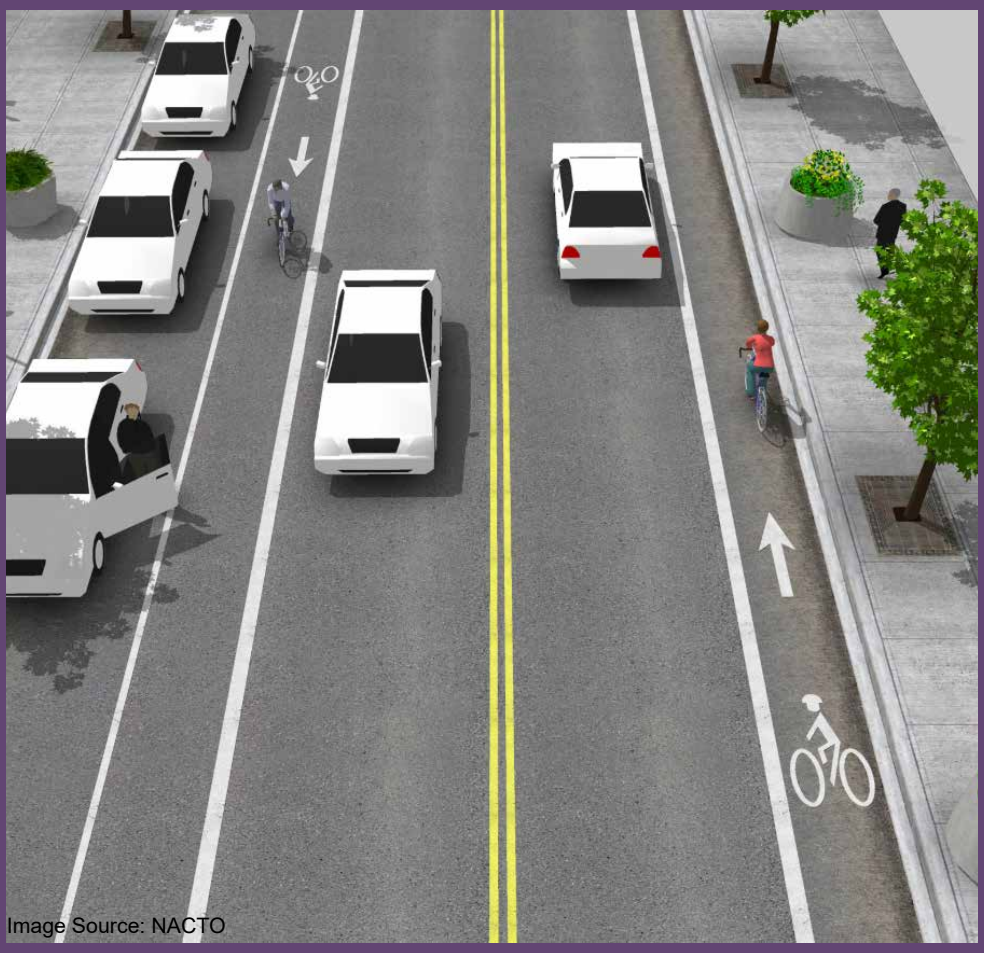


Image Source: NACTO

- Bicycle Lane			Sub Total		$ 221,000
Main Street Bicycle Lane	5,300	LF	$ 10.00	$ 150,000.00	
Market Street Bicycle Lane	5,100	LF	$ 10.00	$ 51,000.00	
5th Street Bicycle Lane	2,000	LF	$ 10.00	$ 20,000.00	


Proposed Bike Lane
Proposed Bicycle Lane
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Z.H. CONFAIR MEMORIAL HWY
Hoffman Natural Area
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
LIGHTSTREET RD
CLOVER
SUNSET
IRONDALE
SUMMIT
FRANKLIN
WIRT
WALLER
GLENN
FAR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
PINE
IRON
RIDGE
LIGHTSTREET
PENN
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
Fernville Family Park
BLOOM ST
MILLER
MURRAY
EAST ST
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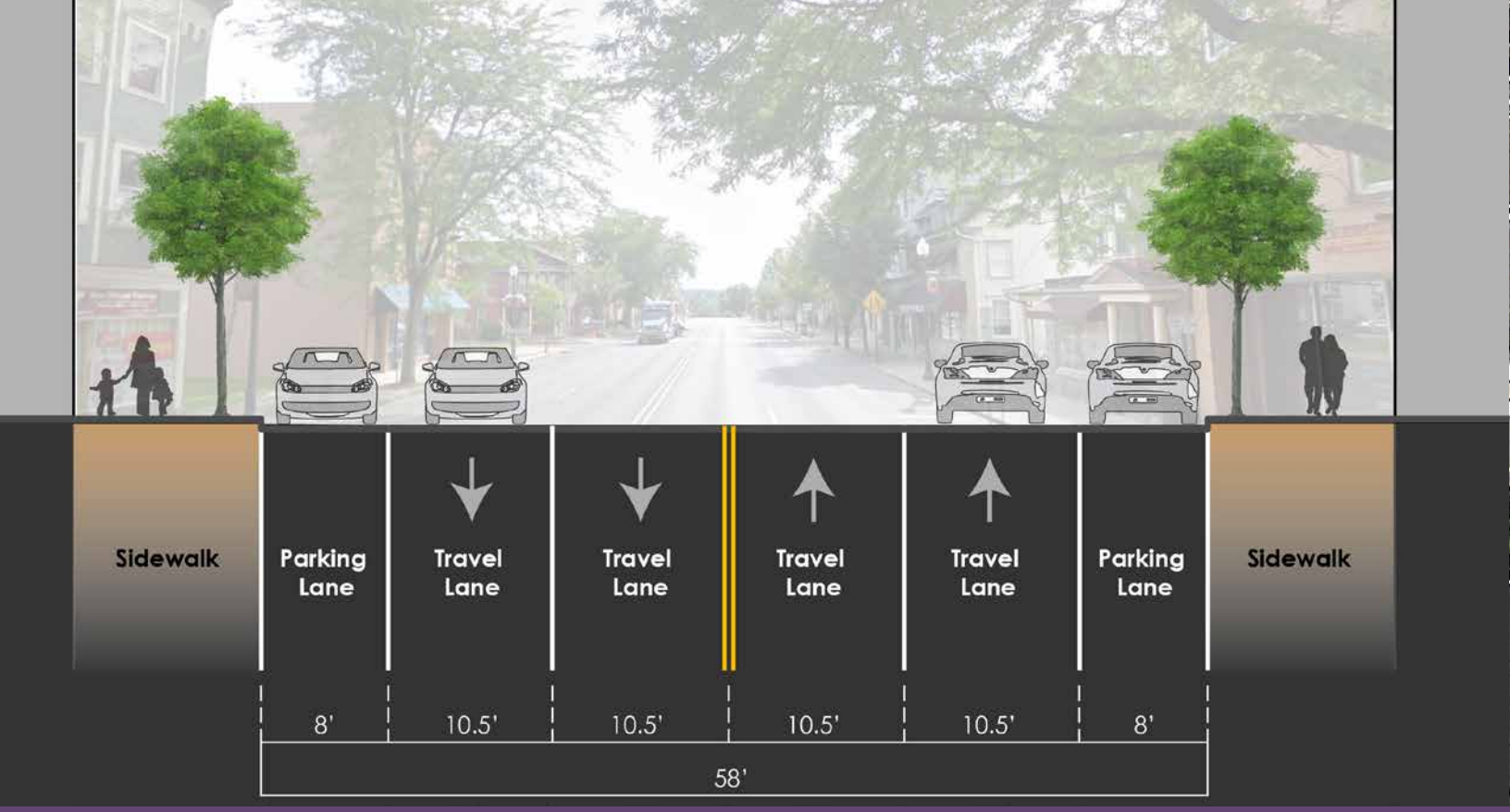
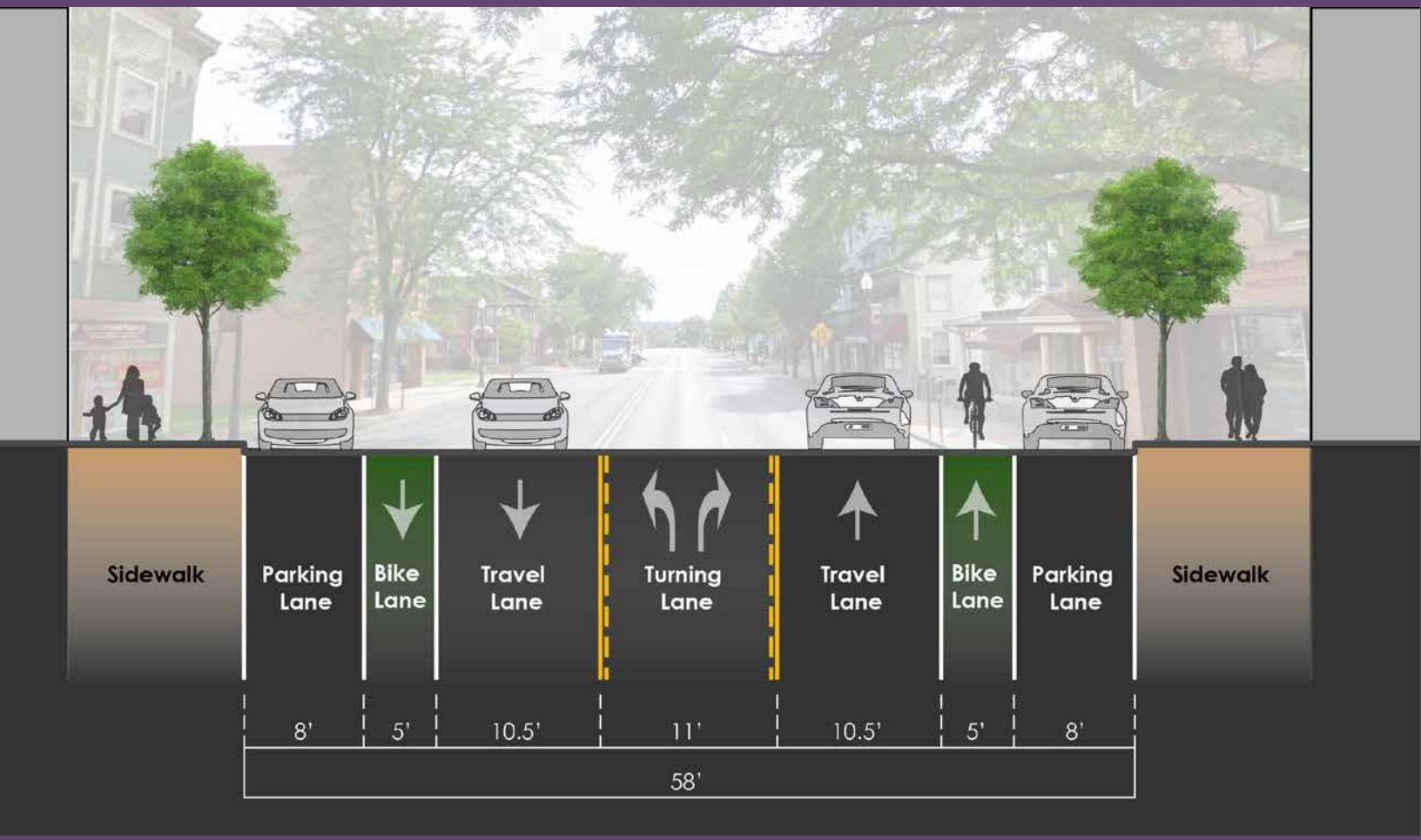
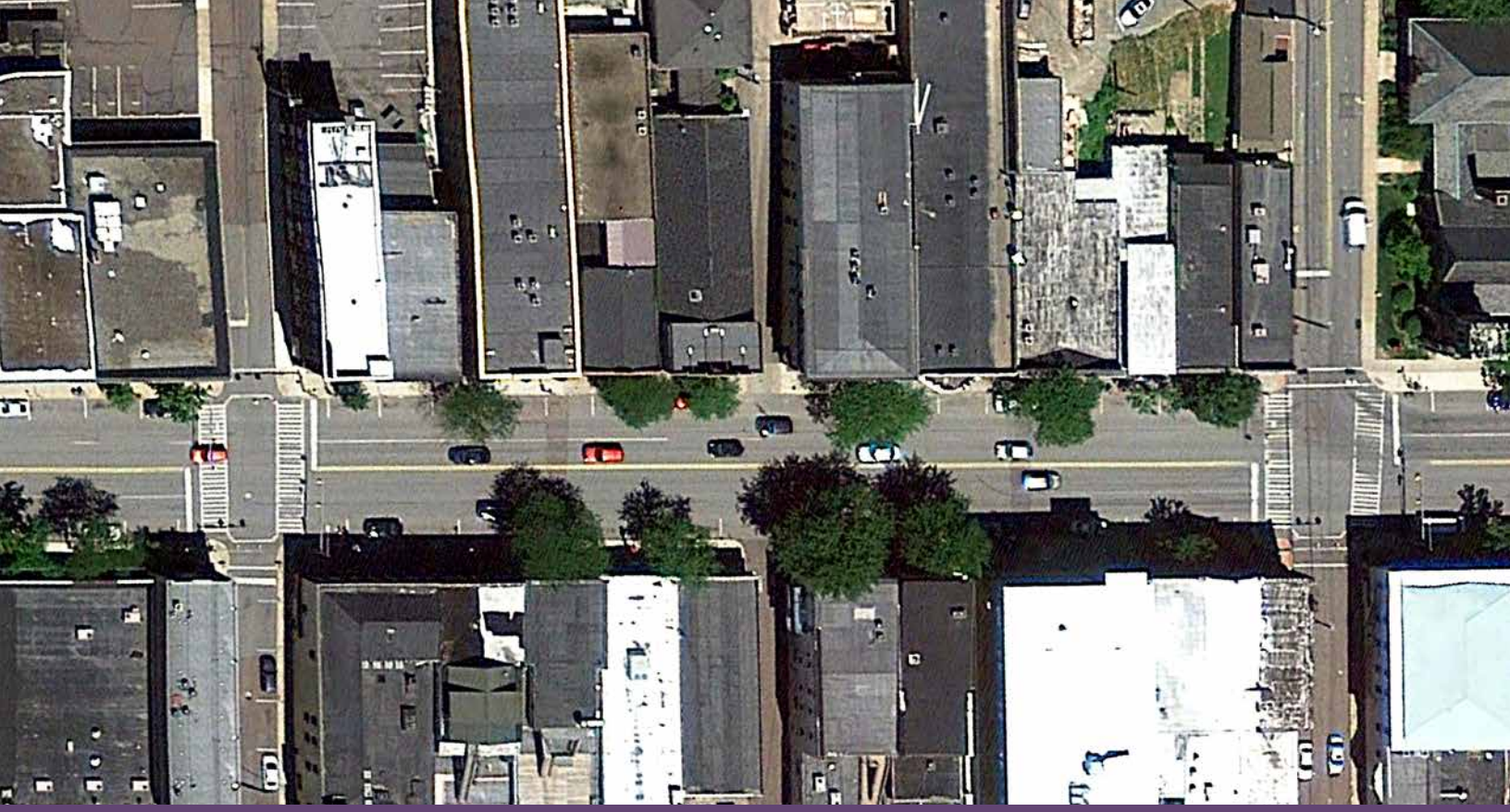
PARK
SEVENTH
MAPLE
EIGHTH
OAK
OLD BERWICK RD
CHERRY
HEMLOCK ST
MAIN ST
JEFFERSON
WEST
MARKET ST
CENTER
FIFTH ST
RAILROAD ST
SCOTT
Elementary School
CATHERINE
POPLAR ST
FORT MCCLURE
FERRY RD
RIVER HILL DR
Fishing Creek
BARTON
AMES
SIXTH ST
Fair Grounds
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
ZEHNER
COLONIAL
Bloomsburg Town Park
Middle School
High School
RAILROAD
Susquehanna River
SANDS
RUPERT DR
Streater Field



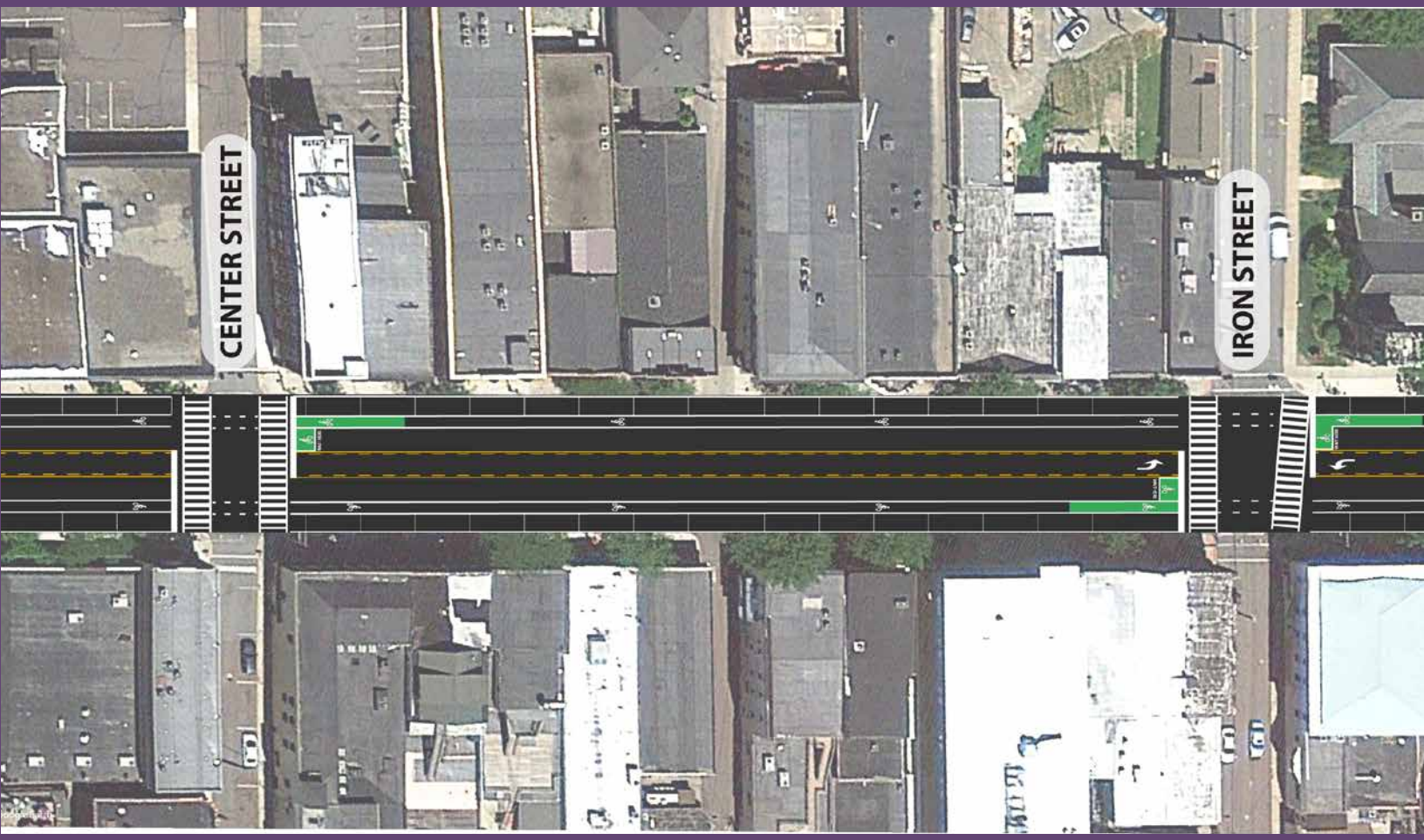
Existing Conditions (Section View) - Main Street



Proposed Improvements (Section View) - Main Street



Existing Conditions (Plan View) - Main Street



Proposed Improvements (Plan View) - Main Street

Existing Conditions: Main Street

Under current conditions, Main Street is difficult to navigate for bicycle riders. The high volume of traffic and a lack of dedicated bicycle infrastructure forces many riders onto the sidewalks - however, signage along Main Street currently prohibits this activity (which is correct, cyclists should not be on sidewalk).

Bloomsburg's downtown commercial business district has wide sidewalks for a pleasant pedestrian experience, but is lacking in any sort of bicycle equivalent.

Proposed Improvements: Main Street

The photo-simulation above depicts proposed improvements to Main Street. In this scenario, parking is maintained and the four current travel lanes (2 in both directions) are reduced to three - 1 travel lane in either direction with a center turning lane.

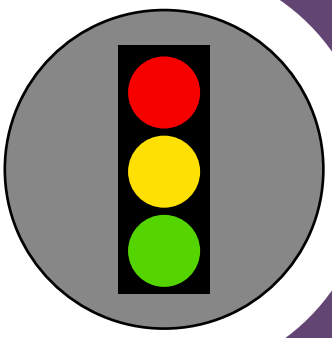
Proposed bike lanes start at Bloomsburg University on the eastern end of Main Street and cross town to West Main Street, providing an east/west bicycle route that can connect cyclists to the important amenities of Main Street.

Since Main Street is a PennDOT Roadway, these proposed changes must be reviewed and approved by PennDOT if they are to be implemented.

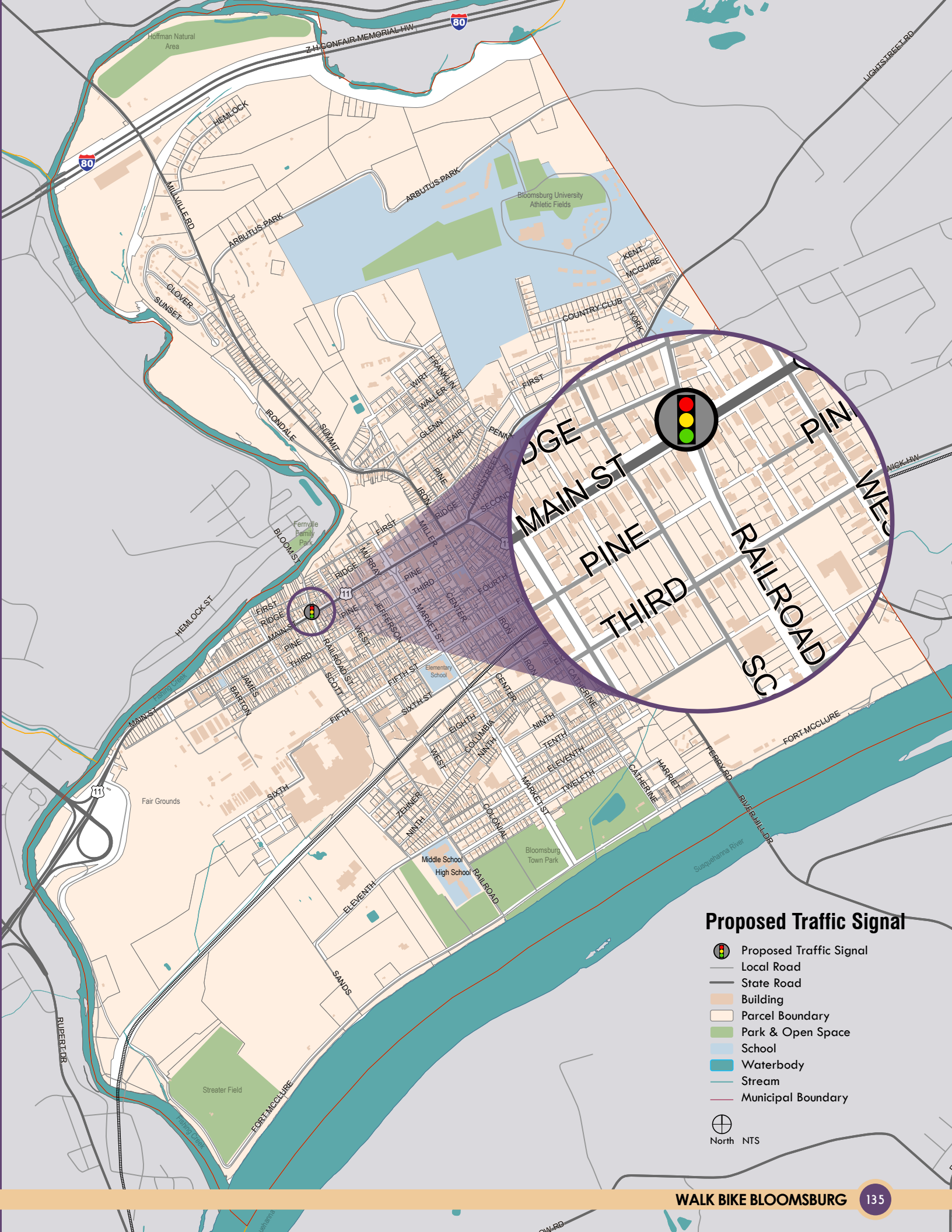
Traffic Signal

Traffic signals relay messages to motorists, and their primary function is to assign right-of-way to conflicting movements of traffic at an intersection. Traffic Signals accomplish this by, *"permitting conflicting streams of traffic to share the same intersection by means of time separation. By alternately assigning right of way to various traffic movements, signals provide for the orderly movement of conflicting flows. They may interrupt extremely heavy flows to permit the crossing of minor movements that could not otherwise move safely through an intersection."* (Advantages of Traffic Signals, Irvine)

A traffic signal increases the traffic handling capacity of an intersection, and when installed under conditions that justify its use, *"a signal is a valuable device for improving the safety and efficiency of both pedestrian and vehicular traffic. In particular, signals may reduce certain types of accidents, most notably, right-angle (broadside) collisions."* (Advantages of Traffic Signals, Irvine)



***- Traffic Signal** (1 Intersection: 4 Mastheads)*			***Sub Total***		***$ 300,000***
	1	***EA***	***$ 300,000.00***	**$ 300,000.00**	


MAIN ST
PINE
THIRD
RAILROAD
Proposed Traffic Signal
Proposed Traffic Signal
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North NTS

Existing Conditions: Railroad & W. Main Street

The intersection pictured above, at Railroad and West Main Street is an important location to consider for improved vehicular, pedestrian, and cyclist safety.

At this location there is poor visibility for motorists turning onto Main Street from Railroad Street, and there is high volume of tractor trailer traffic turning onto Railroad. Under current conditions the lack of crosswalks and the long crossing distance make this intersection challenging for pedestrians and cyclists.

This intersection can be improved with the following features:

- Bump outs to reduce pedestrian crossing distance
- Main Street bike lanes to calm traffic
- Traffic signal with a dedicated pedestrian phase
- Decorative crosswalks to make crossing pedestrians more visible to motorists

Bloomsburg received grant funding through the Green Light Go (GLG) program to address and improve traffic signal timing across Bloomsburg. Improved traffic signal timing at existing intersections and at this new intersection can go a long way toward improving traffic flow along Main Street.

Proposed Improvements: Railroad & W. Main Street

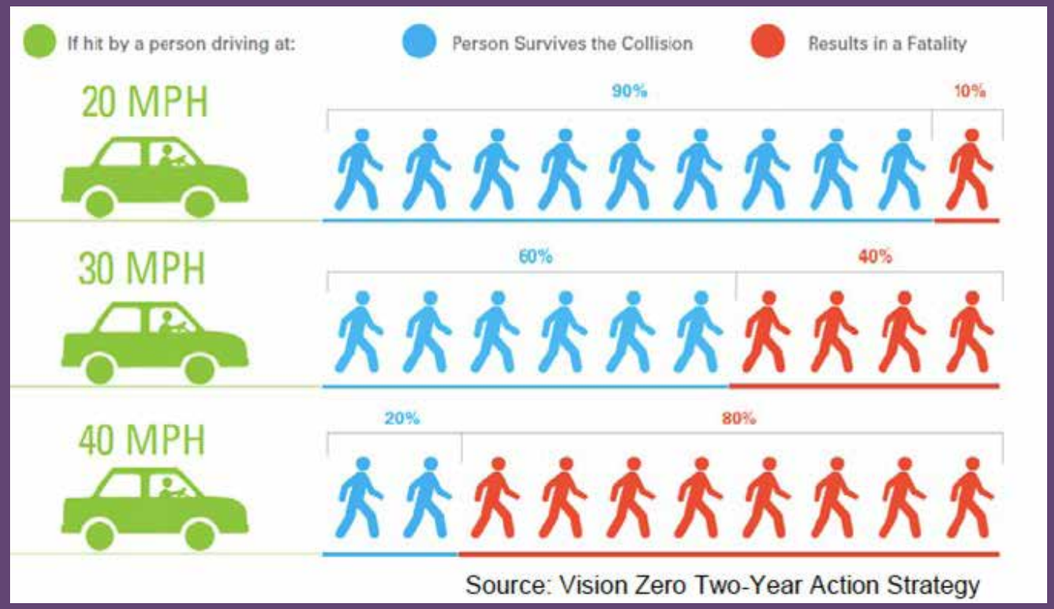
Speed Limit Reduction

While the majority of Bloomsburg is 25mph, there is one section along West Main Street near the Rt. 11 on-ramp that would benefit from a speed limit reduction from 35mph to 25mph. This would also make the traffic speed limit consistent for the length of Main Street. Slower traffic speeds here are at the Bloomsburg Fairgrounds that also will benefit from reduced motor vehicle speeds.

Vision Zero

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. First implemented in Sweden in the 1990s, Vision Zero has proved successful across Europe, and is now gaining momentum in American towns and cities. A key component of this program are speed limit reductions; the info-graphics to the right illustrate the impact of speed limit reductions on pedestrian safety.

- Speed Limit Reduction			***Sub Total***		***$ 1,200***
Speed Limit Signage	***12***	***EA***	***$ 100.00***	**$ 1,200.00**	



When a pedestrian is hit by a vehicle traveling at:

9 out of 10 Survive | 5 out of 10 Survive | 1 out of 10 Survive


Proposed Speed Limit Reduction
Proposed Speed Limit Reduction
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Z.H. CONFAIR MEMORIAL HWY
Hoffman Natural Area
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
LIGHTSTREET RD
CLOVER
SUNSET
IRONDALE
SUMMIT
FRANKLIN
WIRT
WALLER
GLENN
FAR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
PINE
IRON
RIDGE
LIGHTSTREET
PENN
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
SEVENTH
MAPLE
EIGHTH
PARK
OAK
EAST ST
PEARL
OLD BERWICK RD
CHERRY
Fernville Family Park
BLOOM ST
MILLER
MURRAY
HEMLOCK ST
MAIN ST
JEFFERSON
WEST
MARKET ST
CENTER
RAILROAD ST
SCOTT
BARTON
AMES
Fishing Creek
Elementary School
SIXTH ST
POPLAR ST
CATHERINE
HARRIET
FERRY RD
FORT MCCLURE
Fair Grounds
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
ZEHNER
COLONIAL
RIVER HILL DR
Middle School
High School
RAILROAD
Bloomsburg Town Park
Susquehanna River
SANDS
RUPERT DR
Streater Field

Speed Cushion and Speed Table

Speed cushions and speed tables are effective traffic calming measures that may be appropriate in the areas around Bloomsburg Town Park. Speed cushions are mounted on the road and slow the movement of vehicular traffic while allowing bicycles and first responders to travel unimpeded. Speed tables are traffic control devices that can have specific design speeds and may be combined with crosswalks for greater pedestrian visibility.

- Speed Table			***Sub Total***		***$ 10,000***
	1	***EA***	***$ 10,000.00***	***$ 10,000***	
- Speed Cushion			***Sub Total***		***$ 12,000***
	3	***EA***	***$ 4,000.00***	***$ 12,000***	

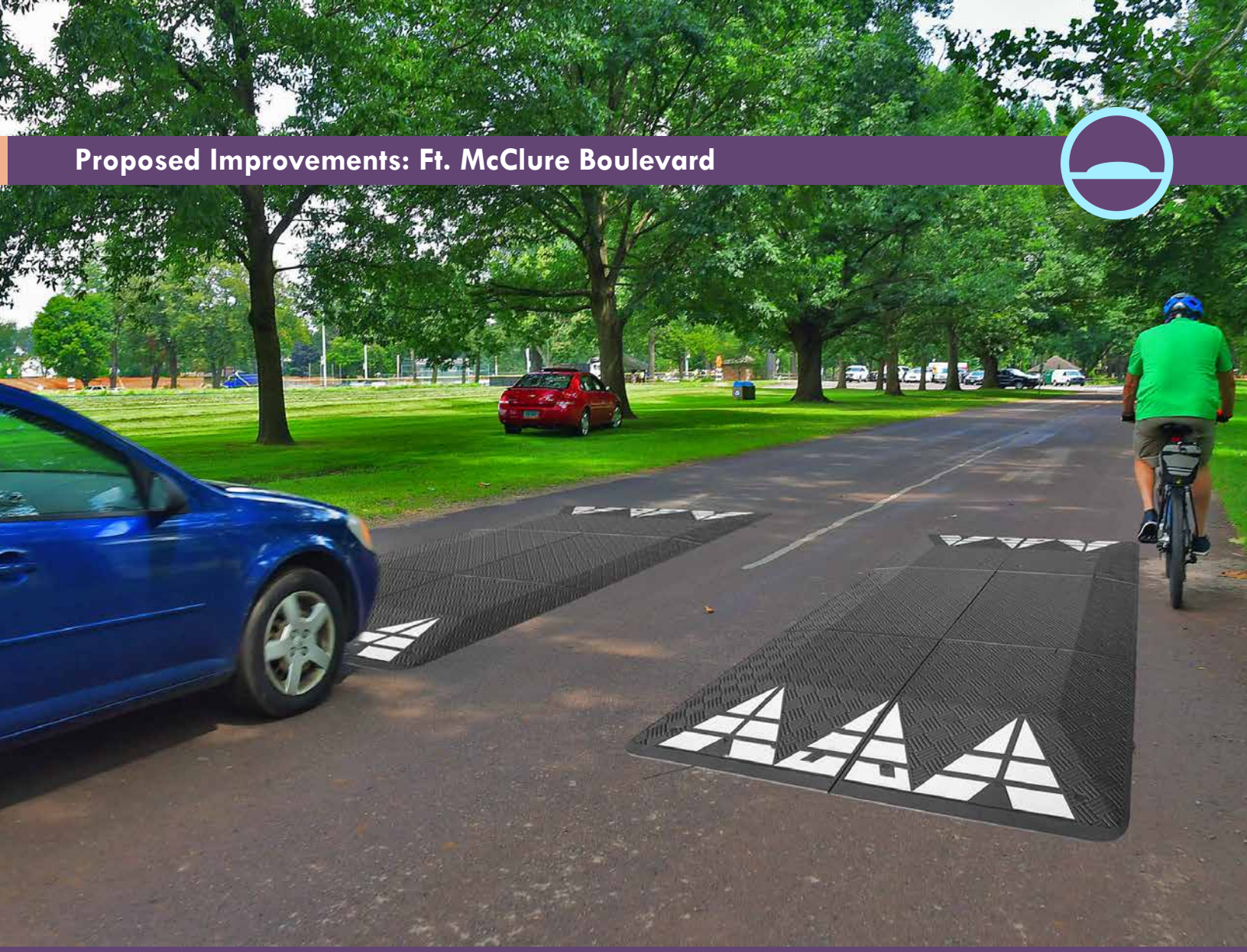

Proposed Speed Cushion & Table
Proposed Speed Cushion
Proposed Speed Table
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
LIGHTSTREET RD
CLOVER
SUNSET
IRONDALE
SUMMIT
WIRT
FRANKLIN
WALLER
GLENN
FAR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
SECOND
THIRD
FOURTH
FIFTH
NEW BERWICK HWY
COLUMBIA BLVD
SEVENTH
MAPLE
EIGHTH
PARK
OLD BERWICK RD
CHERRY
PEARL
EAST ST
LIGHTSTREET
PENN
RIDGE
IRON
PINE
MILLER
MURRAY
BLOOM ST
Fernville Family Park
HEMLOCK ST
MAIN ST
JEFFERSON
WEST
MARKET ST
CENTER
RAILROAD ST
SCOTT
AMES
BARTON
Fishing Creek
Elementary School
FIFTH ST
SIXTH ST
POPLAR ST
CATHERINE
COLUMBIA
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
FERRY RD
FORT MCCLURE
RIVER HILL DR
Fair Grounds
SIXTH
ZEHNER
COLONIAL
Bloomsburg Town Park
Middle School
High School
RAILROAD
Susquehanna River
SANDS
RUPERT DR
Streater Field
11
80

Existing Conditions: Ft. McClure Boulevard

Speed cushions can be implemented along Ft. McClure Boulevard, where traffic calming is desired.

Speed cushions are speed humps that include wheel cutouts to allow large vehicles to pass unaffected, while reducing passenger car speeds. They can be offset to allow unimpeded passage by emergency vehicles and are typically used on key emergency response routes. Speed cushions extend across one direction of travel from the centerline, with longitudinal gap provided to allow wide wheel base vehicles to avoid going over the hump.

Proposed Improvements: Ft. McClure Boulevard

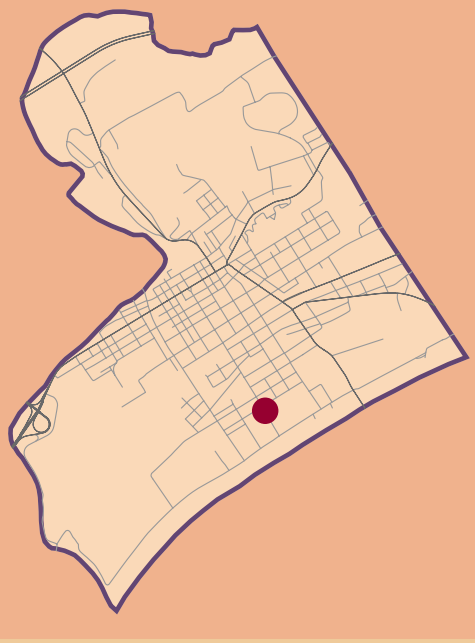


Emergency services should act in coordination with transportation departments, recognizing that reducing speeds and volumes on local roadways benefits overall safety goals by reducing crash frequency and severity.

Speed cushions allow cyclists to ride through or around them unimpeded (above) while slowing motor vehicle traffic.

Speed cushions can be built into the roadway, or purchased and installed with the option of removing them during snow events.

Existing Conditions: Market Street



Market Street is an important corridor that connects the Bloomsburg's downtown commercial business district to the Town Park and the Susquehanna River.

The location picture above (along Market Street south of 12th street) is an important pedestrian connection to Bloomsburg Town Park. Under current conditions pedestrians walk in the roadway with no clear crossing location.

Proposed Improvements: Market Street

The proposed improvements above combine several elements to increase pedestrian, bicycle, and motorist safety at this location. These elements include:

- Speed table is proposed to slow traffic and increase the visibility of crossing pedestrians.
- Sidewalks
- Market Street bike lanes
- Rapid flashing beacons

Speed tables, "are midblock traffic calming devices that raise the entire wheelbase of a vehicle to reduce its traffic speed. Speed tables are longer than speed humps and flat-topped, with a height of 3–3.5 inches and a length of 22 feet" (NACTO). Speed tables can be designed to comfortably accommodate cars traveling 25mph or lower, and can be a traffic calming device for vehicles traveling faster.

Median Through Intersection

Traffic can be calmed along a bicycle boulevard with a median safety island in an intersection. This median prohibits motor vehicle through-traffic while permitting bicycles to pass. The improvement allows crossing bicyclists and/or pedestrians to accept gaps in traffic one direction at a time. A median safety island for bicycle boulevards should be at least 8 ft deep to accommodate crossing bicyclists. Medians used in this fashion are a Federal Highway Administration Proven Safety Countermeasure.

There are a variety of ways to construct this intersection improvement. It can be implemented with concrete and paint, as pictured to the right, or can be made of flexible delineators. The cost estimate below assumes the use of low-cost delineators for this improvement. Use of less permanent materials (such as delineators) allow improvements to be implemented and tested more quickly and cost effectively when compared to materials like concrete.

- Median Through Intersection			***Sub Total***		***$ 550***
Delineators	***50***	***LF***	***$ 11.00***	***$ 550.00***	


NINTH
TENTH
EVENTH
CATHERINE
Proposed Intersection Median
Proposed Median Through Intersection
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
FRANKLIN
FIRST
PENN
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
SPRUCE
SECOND
THIRD
FOURTH
FIFTH
LIGHTSTREET
LIGHTSTREET RD
NEW BERWICK HWY
COLUMBIA BLVD
SEVENTH
MAPLE
EIGHTH
PARK
EAST ST
PEARL
OLD BERWICK RD
CHERRY
MARKET ST
IRON
CENTER
SCOTT
BROADWAY
MAIN ST
AMES
BARTON
Elementary School
SIXTH ST
POPLAR ST
COLUMBIA
WEST
NINTH
TENTH
ELEVENTH
TWELFTH
HARRIET
CATHERINE
FERRY RD
FORT MCCLURE
RIVER HILL DR
Susquehanna River
Fair Grounds
SIXTH
ZEHNER
COLONIAL
Middle School
High School
RAILROAD
Bloomsburg Town Park
SANDS
RUPERT DR
Streater Field
Fishing Creek
Fishing Creek
11
80

Bike Parking

Currently there is limited parking for bicycles in Bloomsburg; bicycle parking can encourage non-vehicular trips and provide greater access to the destinations of Bloomsburg.

Bike racks have been proposed on the following map at important destinations such as:

- Elementary, Middle & High Schools
- Bloomsburg University
- Main Street
- Bloomsburg Town Park
- Streater Field

- Bicycle Parking			***Sub Total***		***$ 17,250***
	23	***EA***	***$ 750.00***	**$ 17,250.00**	


Proposed Bike Parking
Proposed Bicycle Parking
Local Road
State Road
Building
Parcel Boundary
Park & Open Space
School
Waterbody
Stream
Municipal Boundary
North
NTS
Hoffman Natural Area
Z.H. CONFAIR MEMORIAL HWY
80
HEMLOCK
MILLVILLE RD
ARBUTUS PARK
Bloomsburg University Athletic Fields
KENT
MCGUIRE
COUNTRY CLUB
YORK
LIGHTSTREET RD
CLOVER
SUNSET
IRONDALE
SUMMIT
FRANKLIN
WIRT
WALLER
GLENN
FAR
PENN
FIRST
Bloomsburg University
MICHAEL
OAK
CHESTNUT
LOCUST
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Fernville Family Park
BLOOM ST
HEMLOCK ST
MURRAY
RIDGE
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PINE
MILLER
JEFFERSON
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MARKET ST
CENTER
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RAILROAD ST
SCOTT
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BARTON
Elementary School
SIXTH ST
POPLAR ST
CATHERINE
HARRIET
FERRY RD
FORT MCCLURE
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ZEHNER
COLONIAL
Middle School
High School
RAILROAD
Bloomsburg Town Park
Susquehanna River
SANDS
RUPERT DR
Streater Field

Themed Loop Trails

The following page delineates several themed trails that can be used by pedestrians and cyclists to access the parks & open space, destinations, and amenities within Bloomsburg. These loop trails take users across multiple facilities, including sidewalks, side paths, and multi-use trails. These trail loops can help those seeking to walk, jog or bike a specific distance. Additionally, they can give a particular mobility improvement an identity when seeking funding.

Downtown Loop: 1.3 Miles

This themed loop trail runs down Main Street to Barton Street, up Third Street to Iron and back to Main Street. This loop goes through Fountain Square and the downtown commercial business district.

University Loop: 2.3 Miles

This themed loop trail connects Bloomsburg University to Main Street and the downtown commercial business district.

Upper Campus Loop: 5 Miles

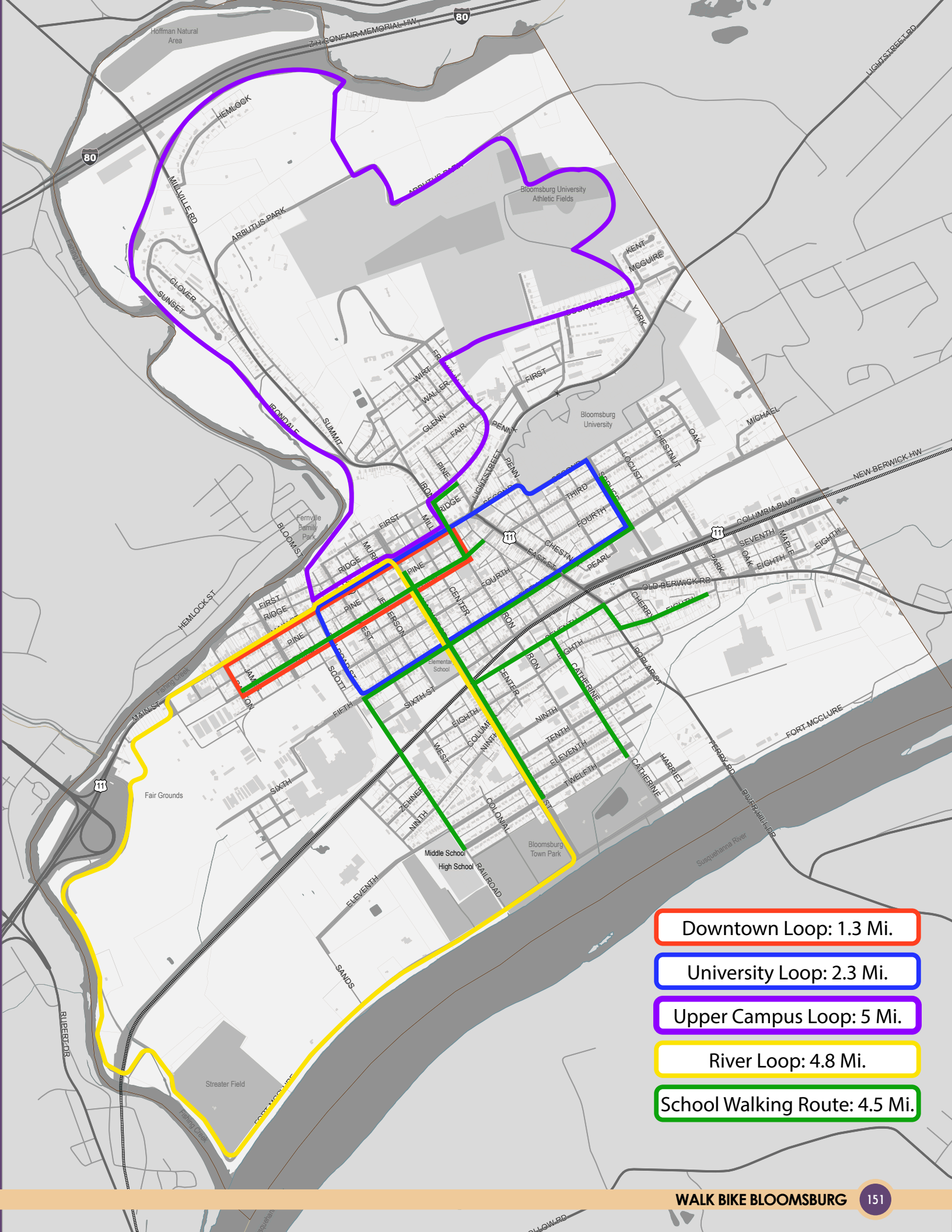
This loop utilizes the existing Bloomsburg rail trail and the proposed Arbutus Road Trail, as explained in the previous section for multi-use trails and connects to Main Street. This loop has the highest elevation gains, as it connects to the Bloomsburg University upper campus.

River Loop: 4.8 Miles

This loop trail utilizes the proposed side path improvements along Ft. McClure Boulevard as well as improvements to Main and Market Streets. This trail connects users to the Susquehanna River, the facilities along Ft. McClure as well as the downtown commercial business district.

School Walking Route: 1.3 Miles

This school walking route is designed as a safer route for children walking and biking to the schools within Bloomsburg. Along this route there is a higher concentration of pedestrian and bicycle improvements, including crosswalks, bike lanes, bike boulevards, special crossings, and signage.


Downtown Loop: 1.3 Mi.
University Loop: 2.3 Mi.
Upper Campus Loop: 5 Mi.
River Loop: 4.8 Mi.
School Walking Route: 4.5 Mi.


NO
PARKING
ANY
TIME
PREVENT
TICK
BITES!

Implementation 4

Implementation Priorities

The following list identifies important infrastructure improvements in Bloomsburg and groups them according to “low hanging fruit”: items that can potentially be implemented more quickly / less expensively than other propose improvements. The other category is “big ticket items” : improvements that may require more significant capital, planning, and time to implement. Bloomsburg may pursue improvements in any order depending on municipal priorities and funding availability. While individual projects may have short, medium, or long-term timelines, it is important to note that implementation of all proposed improvements is a long-term, approximately 20 year process.

Low Hanging Fruit

Improvement

Bicycle Lanes on Market Street
Priority Sidewalk Gaps
Memorial Elementary Crossings
Crosswalks on Main Street
Bicycle Lanes on Main Street

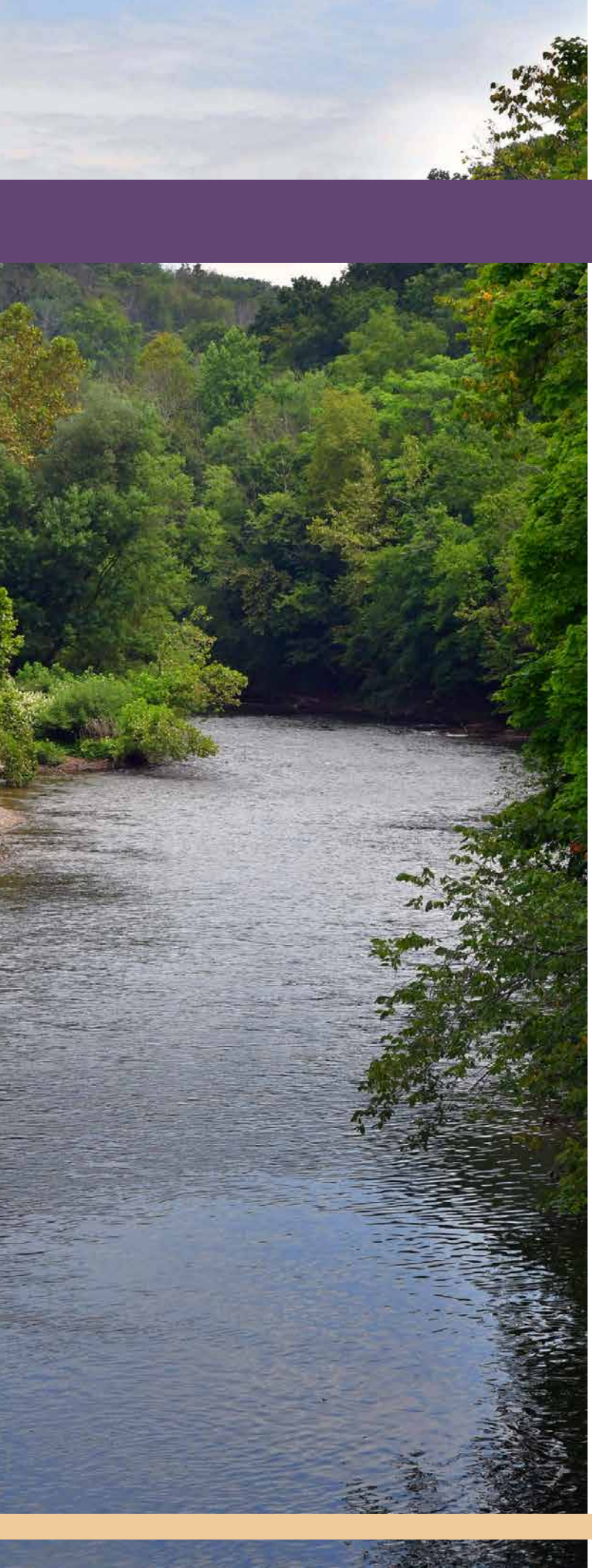
Big Ticket Items

Improvement

Fort McClure Side Path
Fountain Square Redesign
Town Square Redesign
Arbutus Road Trail
Railroad Street Traffic Light
Mayor’s Trail

In order to efficiently implement elements outlined in this plan, Bloomsburg should couple walk / bike infrastructure improvements with regularly scheduled and future anticipated infrastructure repair, replacement, and installation projects (water, sewer, electric, paving, etc).

This coordinated incremental approach can potentially save time, resources, money, and simultaneously complete walk / bike projects while other municipal work is performed.



Potential Funding Sources

Pennsylvania Department of Transportation (PennDOT)

Transportation Alternatives (TA) Set-Aside

The Transportation Alternatives Set-Aside Program (TA Set-Aside) is a Federal highway and transit funds set-aside under the Surface Transportation Program (STP) for community-based "non-traditional" projects designed to strengthen the cultural, aesthetic, and environmental aspects of the nation's intermodal transportation system. The program seeks to provide funding for projects such as construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation.

Non-motorized forms of transportation include sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990. There is a minimum award of $50,000 for construction projects. There is typically a maximum award of $1,000,000, although higher awards can be justified for "exceptional" projects. No applicant "match" is required. Grantees must provide separately for design and engineering. For more information, visit https://www.penndot.gov/ProjectAndPrograms/Planning/Pages/Transportation%20Alternatives%20Set-Aside%20-%20Surface%20Trans.%20Block%20Grant%20Program.aspx.

PennDOT Multimodal Transportation Fund (MTF)

The Multimodal Transportation Fund (MTF) was created in 2013 when the Pennsylvania State Legislature passed and the Governor signed Act 89. This dedicated fund can be used for "projects that coordinate local land use with transportation assets to enhance existing communities" as well as "Projects related to streetscape, lighting, sidewalks and pedestrian safety". Grants are available for projects with a total cost of $100,000 or more. Grants will not normally exceed $3,000,000. Consideration will be given to projects with costs over $3,000,000 should they significantly impact PennDOT's goal of creating jobs and leveraging private investment. A 30% project match is required. Applications are typically due in March. Additional information is available online at: https://www.penndot.gov/ProjectAndPrograms/MultimodalProgram/Pages/default.aspx

Safe Routes to School (SRTS)

Administered through TA Set-Aside, SRTS is a national and international movement to create safe, convenient and healthy opportunities for children to walk and bicycle to school. The program encourages children to walk and bicycle to school, helping to reverse an alarming decrease in students' physical activity and an associated increase in childhood obesity. Eligible activities include new or reconstructed sidewalks or walkways, pedestrian and bicycle signs or signals, transportation projects that achieve ADA compliance, such as curb ramps, bike parking facilities or bus bike racks, shared use paths, side paths, trails that serve a transportation purpose, crossing improvements, and traffic realignments, road diets, or intersection changes. For more information, visit https://www.penndot.gov/TravelInPA/Safety/SchoolResourcesAndPrograms/SafeRoutesToSchool/Pages/default.aspx

Office of the Budget

Redevelopment Assistance Capital Program (RACP)

The Redevelopment Assistance Capital Program (RACP) is a grant program administered by the Office of the Budget for the acquisition and construction of regional economic, cultural, civic, recreational, and historical improvement projects. RACP projects are state-funded projects that cannot obtain primary funding under other state programs. A RACP project must have a total cost of at least $1,000,000. At least 50% of the project cost must be match (non-state) participation. This is a two step project and municipalities must work closely with their state elected officials to move an application through the process. For more information, visit https://www.budget.pa.gov/Programs/RACP/Pages/Main%20Page.aspx

Pennsylvania Department of Conservation and Natural Resources (PA DCNR)

Community Conservation Partnership Program (C2P2)

The Community Recreation and Conservation Program through the PA DCNR Community Conservation Partnership Program (C2P2) provides funding to municipalities and authorized nonprofit organizations for recreation, park, trail and conservation projects. These include planning for feasibility studies, trail studies, conservation plans, master site development plans, and comprehensive recreation park and open space and greenway plans. In addition to planning efforts, the program provides funding for land acquisition for active or passive parks, trails and conservation purposes, and construction and rehabilitation of parks, trails, and recreation facilities. Most of these projects require a 50% match, which can include a combination of cash and/or non-cash values. Applications are typically due in mid-April.

Recreational Trails Program

The Pennsylvania Recreational Trails Program, also through the C2P2 Program, awards grants to federal and state agencies, local governments, non-profit and for-profit organizations to assist with the construction, renovation and maintenance of trails and related facilities for both motorized and non-motorized recreational trail use, the purchase or lease of equipment for trail maintenance and construction and the development of educational materials and programs. These grants require a minimum 20% match, which can include a combination of cash and/or non-cash values.
More information on this program can be found at the DCNR website: http://www.dcnr.state.pa.us/brc/grants/indexgrantsinstruct.aspx.

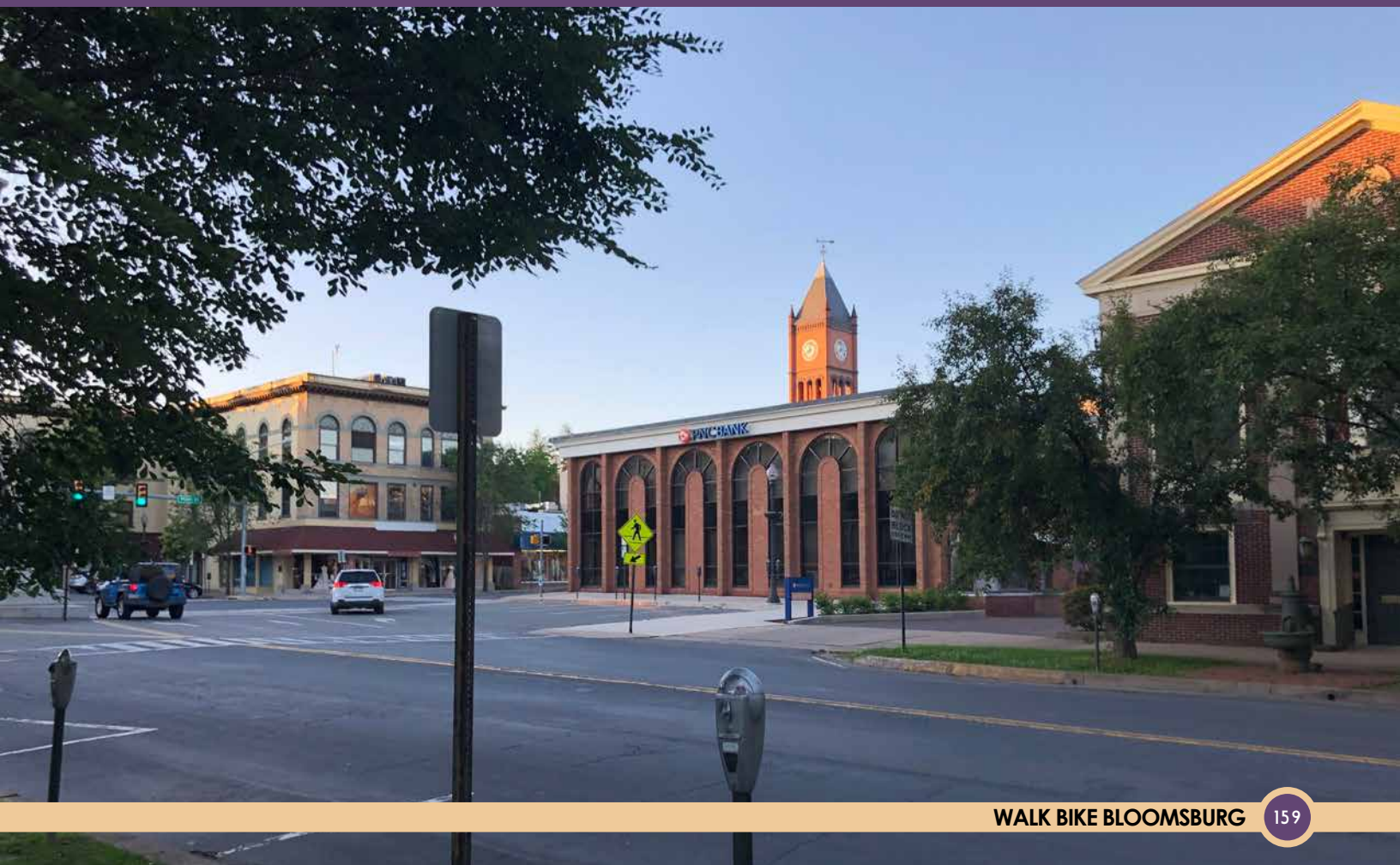
Commonwealth Financing Agency (CFA)

Greenways, Trails and Recreation Program (GTRP)

Administered through the DCED, the Greenways, Trails and Recreation Program (GTRP) provides funding for planning, acquisition, development, rehabilitation and repair of greenways, recreational trails, open space, parks and beautification projects. The program awards up to $250,000 per project to eligible applicants and requires a local match of 15% of the total project cost. Funding from DCED for "sidewalk" connections will need to be categorized as multi-use trails. Some of the recommended sidewalk gap improvements may fit within a "trail" designation. Applicants must work closely with their state elected officials for serious consideration for these grants. Applications are typically due at the end of May. For more information, visit https://dced.pa.gov/programs/greenways-trails-and-recreation-program-gtrp/

DCED Multimodal Transportation Fund (MTF)

Administered through the PA Department of Community and Economic Development (DCED), the Multimodal Transportation Fund provides grants that may be used for the development, rehabilitation and enhancement of transportation assets to existing communities, streetscape, lighting, sidewalk enhancement, pedestrian safety, connectivity of transportation assets and transit-oriented development. Grants are available for projects with a total cost of $100,000 or more and grants shall not exceed $3,000,000 for any project. The CFA will consider grant requests over $3,000,000 for projects that will significantly impact the Financial assistance under the Multimodal Transportation Fund shall be matched by local funding in an amount not less than 30% of the non-federal share of the project costs. Applicants must work closely with their state elected officials for serious consideration for these grants. Applications are typically due in July. For more information, visit https://dced.pa.gov/programs/multimodal-transportation-fund/



Department of Community and Economic Development (DCED)

Keystone Communities Program (KCP)

The Keystone Communities (KC) program is designed to encourage the creation of partnerships between the public and private sectors that jointly support local initiatives such as the growth and stability of neighborhoods and communities; social and economic diversity; and a strong and secure quality of life. The program allows communities to tailor the assistance to meet the needs of its specific revitalization effort. Since some of the proposed improvements for WALK BIKE Bloomsburg are in the Town's central business district and support local economic activity, they may qualify under this program.

Communities may wish to consider designation through the KC program as a Keystone Main Street, Keystone Elm Street, Keystone Enterprise Zone, or Keystone Community. Designation is an opportunity for targeted investment and development including the identification of specific needs for investment and/or development and the design and implementation of a strategy to address those needs. For more information, visit https://dced.pa.gov/programs/keystone-communities-program-kcp/

SEDA-COG

SEDA-COG is a multi-county Metropolitan Planning Organization (MP0) for Central Pennsylvania.

Through SEDA-COG, counties and municipalities in Central Pennsylvania have a voice in the state's transportation plans. Working together with SEDA-COG, local government, the business community, and non-profit organizations establish the region's transportation priorities.

Those priorities are detailed in the Transportation Improvement Program (TIP), updated by SEDA-COG every two years and often amended. There are numerous opportunities for public participation in developing the TIP, including its periodic review by SEDA-COG's Metropolitan Planning Organization (MPO). The TIP encompasses the first four years of the Commonwealth's Twelve Year Transportation Program. Below are links for the current SEDA-COG TIP and Commonwealth Twelve Year Program.

Many of the larger infrastructure improvements recommended by this plan could be placed on the ` TIP. Town officials should work with SEDA-COG to determine if some of the plans improvements could be placed on the TIP. This will help attract PennDOT funding, either through legislative appropriation of through programs such as TA Set-Aside or Multi-Modal funds.

Work Item	Quantity		Unit Cost	Total Item Cost	Total Cost
- Sidewalk			Sub Total		$ 656,250
New - Concrete (4' Wide)	105,000	SF	$ 6.25	$ 656,250.00	
- Crosswalk *ADA Ramps at Each Intersection			Sub Total		$ 162,800
Continental	88	EA	$ 1,100.00	$ 96,800.00	
Crosswalk striping, white, 24"					
Decorative	22	EA	$ 3,000.00	$ 66,000.00	
Highly visible crosswalk design					
- Special Crossing			Sub Total		$ 36,400
Railroad and Pedestrian Crossing	7	EA	$ 5,000.00	$ 35,000	
Special Crossing Signage	14	EA	$ 100.00	$ 1,400	
- Speed Table			Sub Total		$ 10,000
	1	EA	$ 10,000.00	$ 10,000	
- Speed Cushion			Sub Total		$ 12,000
	3	EA	$ 4,000.00	$ 12,000	
- Rapid Flashing Beacon			Sub Total		$ 90,000
Rectangular Rapid Flashing Beacon	6	EA	$ 15,000.00	$ 90,000.00	
- Hand Man			Sub Total		$ 1,500
Hand Man Pedestrian Signal	1	EA	$ 1,500.00	$ 1,500.00	
- Pedestrian Refuge Island			Sub Total		$ 15,000
	1	EA	$ 15,000.00	$ 15,000.00	
- Median Through Intersection			Sub Total		$ 550
Delineators	50	LF	$ 11.00	$ 550.00	
- Multi Use Trail Asphalt Trail 10' Width			Sub Total		$ 4,410,000
Mayor's 5th Street Trail'	0.35	MI	$ 1,000,000.00	$ 350,000.00	
Route 11 Trail	0.9	MI	$ 1,000,000.00	$ 900,000.00	
Franklin Street to Arbutus Trail	0.4	MI	$ 1,000,000.00	$ 400,000.00	
Arbutus Trail	2.75	MI	$ 1,000,000.00	$ 2,750,000.00	
Highland Drive Trail	0.01	MI	$ 1,000,000.00	$ 10,000.00	
- Sharrow			Sub Total		$ 50,300
Sharrow On-Road Bike Route	25,150	LF	$ 2.00	$ 50,300.00	
- Side Path Asphalt Trail 8' Width			Sub Total		$ 5,100,000
Connections to Rail Trail	0.35	MI	$ 1,000,000.00	$ 350,000.00	
Franklin Street Side Path	0.27	MI	$ 1,000,000.00	$ 270,000.00	
Fort McClure Boulevard Trail	4.25	MI	$ 1,000,000.00	$ 4,250,000.00	
E 6th Street Side Path	0.23	MI	$ 1,000,000.00	$ 230,000.00	
- Bicycle Lane			Sub Total		$ 221,000
Main Street Bicycle Lane	5,300	LF	$ 10.00	$ 150,000.00	
Market Street Bicycle Lane	5,100	LF	$ 10.00	$ 51,000.00	
5th Street Bicycle Lane	2,000	LF	$ 10.00	$ 20,000.00	
- Bicycle Boulevard			Sub Total		$ 20,950
Railroad Street Bicycle Boulevard					
Sharrow On-Road Bike Route	5,400	LF	$ 2.00	$ 10,800.00	

Sharrow On-Road Bike Route	5,400	LF	$ 2.00	$ 10,800.00	
Stop Sign Removal	15	EA	$ 150.00	$ 2,250.00	
Catherine Street Bicycle Boulevard					
Sharrow On-Road Bike Route	3,200	LF	$ 2.00	$ 6,400.00	
Stop Sign Removal	10	EA	$ 150.00	$ 1,500.00	
- Bike Box			***Sub Total***		***$ 5,600***
	14	EA	$ 400.00	$ 5,600.00	
- Bump Out			***Sub Total***		***$ 91,000***
	7	EA	$ 13,000.00	$ 91,000.00	
- Bicycle Parking			***Sub Total***		***$ 17,250***
	23	EA	$ 750.00	$ 17,250.00	
- Bike Share (or by Vendor)			***Sub Total***		***$ 600,000***
Station with 6 Bikes & 11 docks	12	EA	$ 50,000.00	$ 600,000.00	
- Alley Changes			***Sub Total***		***$ 6,400***
Alley Change Signage	64	EA	$ 100.00	$ 6,400.00	
- One-Way Street			***Sub Total***		***$ 17,350***
North Street					
Pavement Marking	425	LF	$ 2.00	$ 850.00	
Signage	9	EA	$ 100.00	$ 900.00	
Spruce Street					
Pavement Marking	1,200	LF	$ 2.00	$ 2,400.00	
Delineators	1,200	LF	$ 11.00	$ 13,200.00	
- Speed Limit Reduction			***Sub Total***		***$ 1,200***
Speed Limit Signage	12	EA	$ 100.00	$ 1,200.00	
- Traffic Signal *(1 Intersection: 4 Mastheads)*			***Sub Total***		***$ 300,000***
	1	EA	$ 300,000.00	$ 300,000.00	
- School Walking Route			***Sub Total***		***$ 3,000***
School Walking Route Signage	30	EA	$ 100.00	$ 3,000.00	
** Number to be determined - $8,000 each in addition to above estimates*					
				Total Cost	***$ 11,828,550***
				Mobilization (3%)	**$ 354,857**
				Construction Surveying (3%)	**$ 354,857**
				Erosion and Sedimentation Control (2%)	**$ 236,571**
				Maintenance of Traffic (2%)	**$ 236,571**
				Construction Contingency (10%)	**$ 1,182,855**
				Total Construction Costs	***$ 14,194,260***
				Design and Engineering (20%)	**$ 2,838,852**
				Total Estimated Project Costs	**$ 17,033,112**

Estimated Costs of Development

These cost estimates are for implementation of all proposed improvements within this plan. As final design and engineering is prepared for specific improvements, more finely detailed cost estimates should be developed.

Please note that all projects will not be completed at the same time, and would be approached individually and strategically depending on available grants and other funding sources.

Prepared By

SIMONE COLLINS
LANDSCAPE ARCHITECTURE

Gibson-Thomas ENGINEERING

Appendix 5

Prepared By

SIMONE COLLINS
LANDSCAPE ARCHITECTURE

Gibson-Thomas ENGINEERING