



US Bicycle Route 11 System Study & Route Evaluation



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Prepared for:



Franklin County Metropolitan Planning Organization

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Introduction

Established in 1978 by the American Association of State Highway and Transportation Officials (AASHTO), the United States Bicycle Route System (USBRS) is a network of long-distance cycling routes throughout the United States (**Figure 2**). The purpose of the USBRS is to facilitate bicycle travel on appropriate roads, paths and highways over routes that are desirable for interstate bicyclists. A route is formed as a continuous network of available roads through two or more states connecting and traversing areas of scenic, cultural, and recreational interest.

Within Pennsylvania, there are currently three designated US Bicycle Routes, including USBR 50 (Great Allegheny Passage); USBR 36 (US 6); and USBR 30 (through Erie County). The following bullet points describe the routes in more detail, while Figure 1 shows how they are arrayed geographically across Pennsylvania.

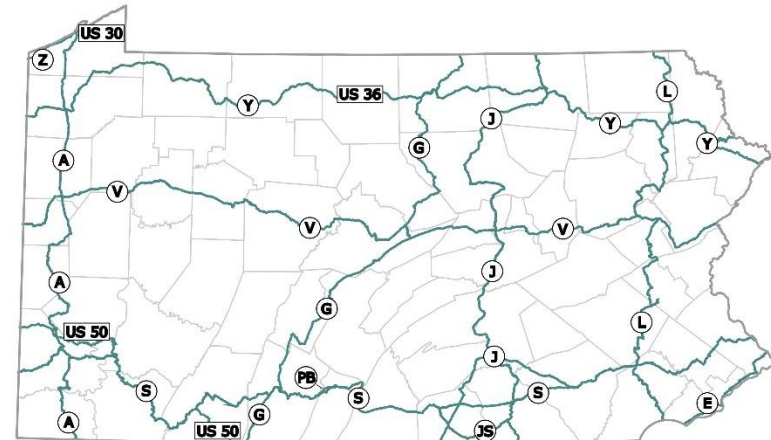
- **USBR 50** - USBR 50 connects Maryland in the east – through the Pittsburgh area – to West Virginia in the west. This route mostly follows off-road trails, including the popular Great Allegheny Passage, Montour Trail, and the Panhandle Trail.
- **USBR 36** - USBR 36 coincides with Pennsylvania State Bicycle Route Y, connecting New York in the east – along historic Route 6 and around the Scranton area – to Ohio in the west.
- **USBR 30** - USBR 30 follows Pennsylvania State Bicycle Route Z, connecting New York in the east – through Erie – to Ohio in the west.

The purpose of this study is to identify a preferred route for United States Bicycle Route 11 (USBR11) through Franklin County and expand the USBRS network (**Figure 2**), while offering the County increased recreational and economic development opportunities. As part of this study process, two routes needed identification:

- **USBR11** (not to be confused with US 11): connecting the USBR 11 in Maryland to Chambersburg and travel east into Caledonia.
- **Shippensburg Spur**: a spur extending northward from Chambersburg into Shippensburg for a possible connection with the Cumberland Valley Rail Trail, which would provide a 9.5-mile extension to Newville.

As proposed, the USBR 11 would connect to the USBR 11 terminus in Maryland. Nicknamed the “Great Lakes to Great Smokeys” route, USBR 11 is planned to traverse from North Carolina to New York. The Pennsylvania portion must connect to Maugansville Road in Maryland to the south, where USBR 11 has been designated since 2020. This designation is needed in order to provide route continuity for long-distance cyclists traveling between North Carolina and New York and provide cyclists with additional wayfinding services at their disposal such as formal electronic mapping and physical route signing once the Pennsylvania section is officially designated.

Figure 1: Pennsylvania’s BRS Network and BicyclePA Routes



Source: PennDOT



Figure 2: U.S. Bicycle Route System National Corridor Plan



Source: AdventureCycling.org



About Franklin County

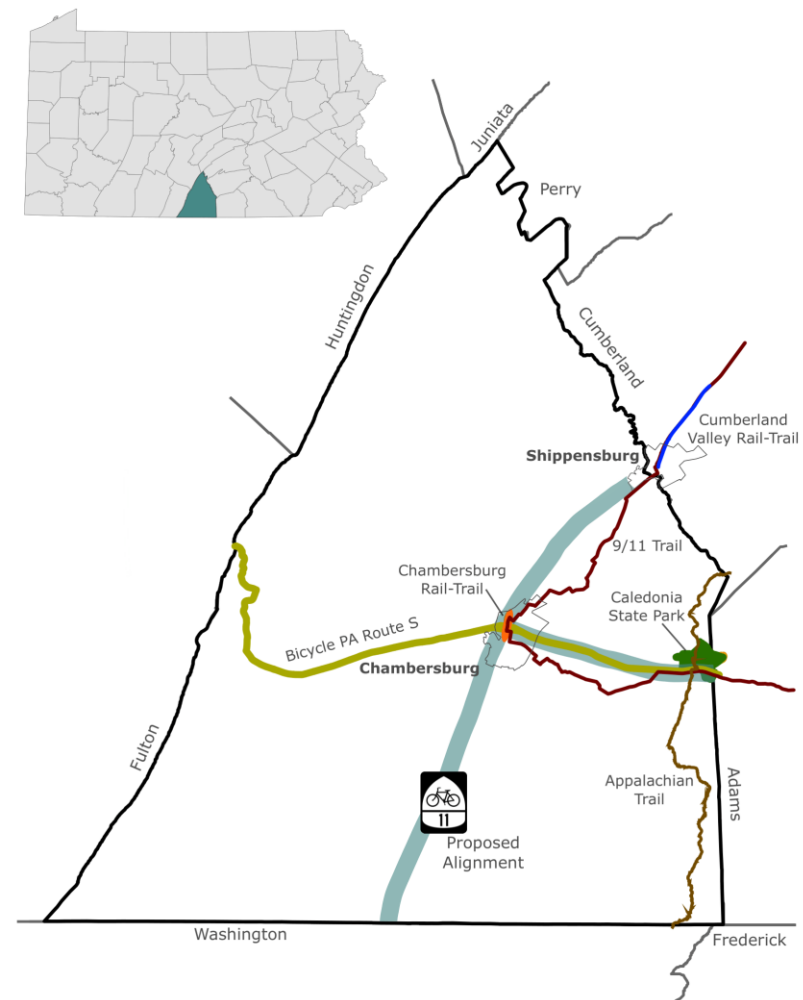
Franklin County is a growing area located within the Cumberland Valley region of southcentral Pennsylvania. Since its creation in 1784, the county has never experienced a decline in population. It is located directly between two larger metropolitan statistical areas (MSAs), including the Harrisburg-Carlisle MSA in Pennsylvania and the Hagerstown-Martinsburg, MD-WV MSA, which includes counties in both Maryland and West Virginia.

The county's total population exceeded 150,000 in 2013, and during the past decade was the ninth-fastest-growing county in the state, ending the decade with a total population of nearly 155,000. Its topography is characterized as rolling farmland. It lies immediately east of the federally designated Appalachian region.

The county's main economic centers include Chambersburg, the county seat, and Shippensburg, a center for education and home of Shippensburg University.¹ Other, smaller economic centers include Greencastle and Waynesboro. Chambersburg ranks as the state's fifth-largest borough, with a 2020 population of 21,903.

The county is bisected by Interstate 81, which has a north-south orientation and is a major thoroughfare serving warehouse and distribution center activity throughout its nearly 26-mile extent across the county. Other major highway routes include US 11 and US 30, which intersect in Chambersburg.

Figure 3: Proposed Alignment of US 11 BRS and Countywide Context



¹ A majority of Shippensburg Borough is situated within neighboring Cumberland County.



Alignment Criteria and Evaluation

Route alignments were developed with the specific needs of US Bike Route users in mind. The US Bike Route system has been designed for long-distance, or “touring,” cyclists. This user type is a more confident and capable rider than the public at large, yet still requires routing that is safe and connected to assets in developed areas.

In determining alternative routes, the study team referred to AASHTO’s Corridor and Route Criteria for the U.S. Bike Route System and Adventure Cycling Association’s route selection criteria. These criteria included provisions such as the presence of amenities and accommodations, multimodal access, directness, and whether the routes overlap with an established and/or planned route.

A number of data factors were also used to determine suitability of the preferred alignment, including:

- **Bicycle Level of Service, including:**
 - Cartway/shoulder width and condition
 - Posted speeds
 - Traffic volumes
 - Share of truck volumes
 - Pavement condition
- **Bicycle Safety:**
 - Vehicular & Bicycle/Pedestrian Crashes from 2010-2020
- **User Data & Existing Designated Routes:**
 - Franklin County Cyclist Group-Designated Routes
 - 9/11 Memorial Trail Designated Route
 - Personal & community routes uploaded to sites such as Strava, Garmin Connect, and Ride with GPS



Route Selection Criteria

Amenities and Accommodations

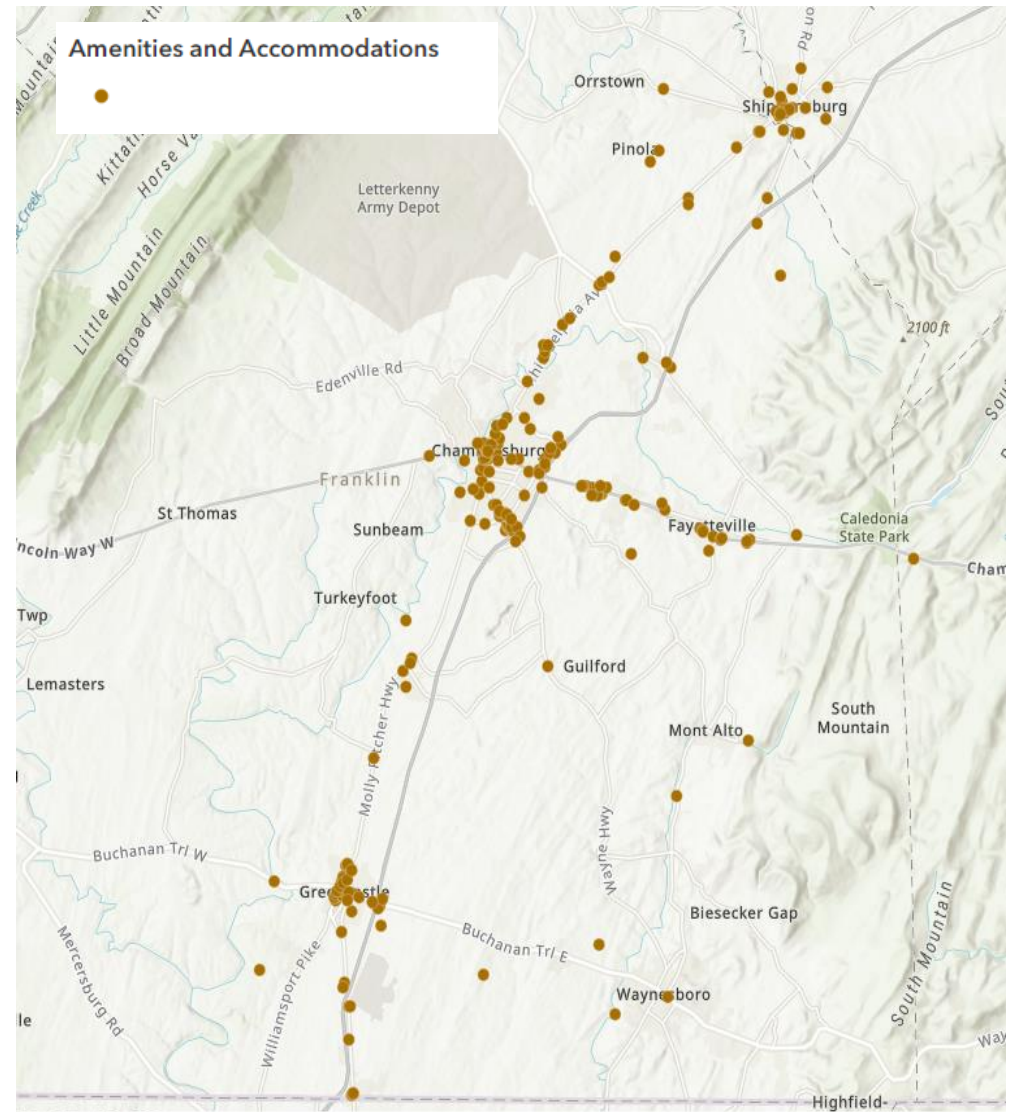
Although it is identified as a “secondary” consideration for US Bicycle Route designation, access to services and amenities at appropriate intervals is crucial to ensuring cross country cyclists can meet their daily needs (food, water, overnight accommodations). This could include places to restock their supplies, have adequate places to rest and recharge, and access to tools to repair and maintain bicycles.

Amenities and accommodations identified near the three alternatives in Franklin County include:

- Bicycle shops
- Campsites
- Convenience stores
- Grocery stores
- Hotels/bed and breakfasts
- Libraries
- Medical facilities (urgent care and hospitals)
- Museums and cultural facilities
- Parks and recreation facilities
- Post offices
- Restaurants

As shown in **Figure 4**, many amenities and services that are available meet a cyclist’s daily needs are clustered near the county’s urban centers and along major routes, like US 11 and US 30.

Figure 4: Amenities and Accommodations



Bicycle Level of Service

Bicycle Level of Service is based on a user’s perception of the qualitative measure that characterizes the operation of the roadway. Using GIS and available data for state roadways on PennDOT’s One Map, a value between -2 and +2 was assigned to each segment of roadway based on its physical characteristics: cartway/shoulder width and condition, posted speeds, traffic volumes, share of truck volumes, and surface pavement condition. These characteristics can influence cyclist comfort levels and affect their cycling experience through Franklin County.

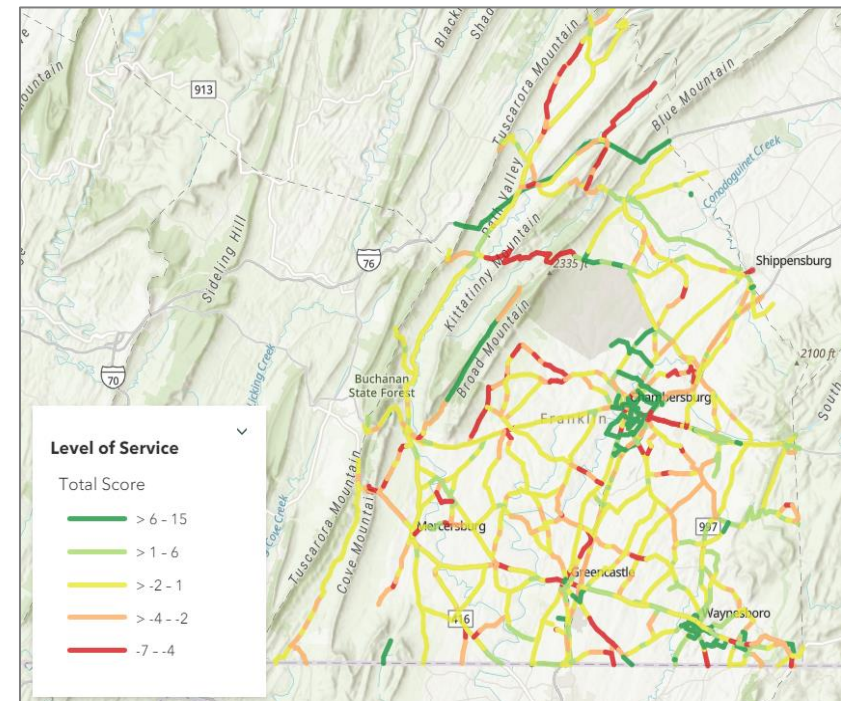
Table 1: Bicycle Level of Service

Suitability Factor	Value Range	Factor Score
Shoulder Width	5 ft or greater	2
	4 - 5 ft	1
	2 - 4 ft	0
	1 - 2 ft	-1
	Less than 1ft	-2
Traffic Volume (AADT)	Less than 3,000	2
	3,000 – 7,000	1
	7,000 – 12,000	0
	12,000 – 25,000	-1
	25,000 or Greater	-2
Percentage of Trucks	Low Volume (0% – 3%)	2
	Medium Volume (3% - 6%)	0
	High Volume (> 6%)	-2
Road Surface Type and Condition (IRI)	Excellent	2
	Fair	0
	Poor	-2

While the study team used Level of Service to approximate the relative quality of service that a “typical” cyclist could expect along different stretches of the corridor, it should also be recognized that cyclists vary greatly in terms of competency and level of comfort when riding in traffic.

The result of this planning-level exercise rendered a total value tallied for each segment and assigned a color based upon service level, as shown in **Figure 5**. The lower the total score, the less likely a cyclist will feel comfortable on the roadway.

Figure 5: Bicycle Level of Service Results

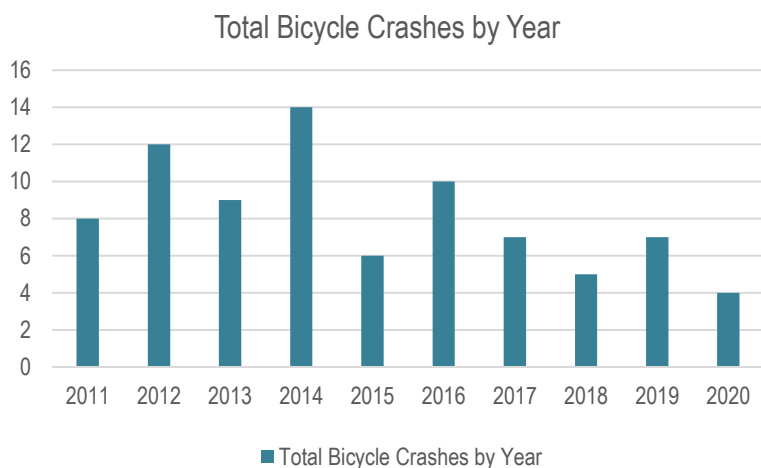


Crash Data

Crash data was collected and mapped in Franklin County from 2010 to 2020. Bicycle- and pedestrian-involved crashes were also examined separately and analyzed by crash type, crash location, weather condition, lighting condition, etc., to provide insight into prevalent issues or site-specific safety concerns.

According to PennDOT's Crash Information Tool (PCIT), bicycle-involved crashes have been gradually decreasing in the county (**Figure 6**). The year 2020 experienced the lowest number of bicycle crashes within the last decade.

Figure 6: Total Bicycle Crashes, 2011-2020



Source: Pennsylvania Crash Information Tool

There have been three fatal injury, bicycle-related crashes in the last ten years, occurring in 2016, 2019, and most recently in 2020. Of the three fatal crashes, two crashes occurred in the daylight and one at night in 2020. No fatal, bicycle-related crashes occurred along alignments identified for this study.

Table 2: Crash Severity

Severity	Number of Crashes	Percent of Crashes
Not injured	1	1%
Possible Injury	32	39%
Suspected Minor Injury	23	28%
Injury/ Unknown Severity	18	22%
Suspected Serious Injury	5	6%
Fatal Injury	3	4%

Source: Pennsylvania Crash Information Tool

Most bicycle-involved crashes, 71 percent, occurred in the daylight hours. 20 crashes occurred in the evening hours, with 14 occurring in an area with streetlights present.

Table 3: Lighting When Crashes Occurred

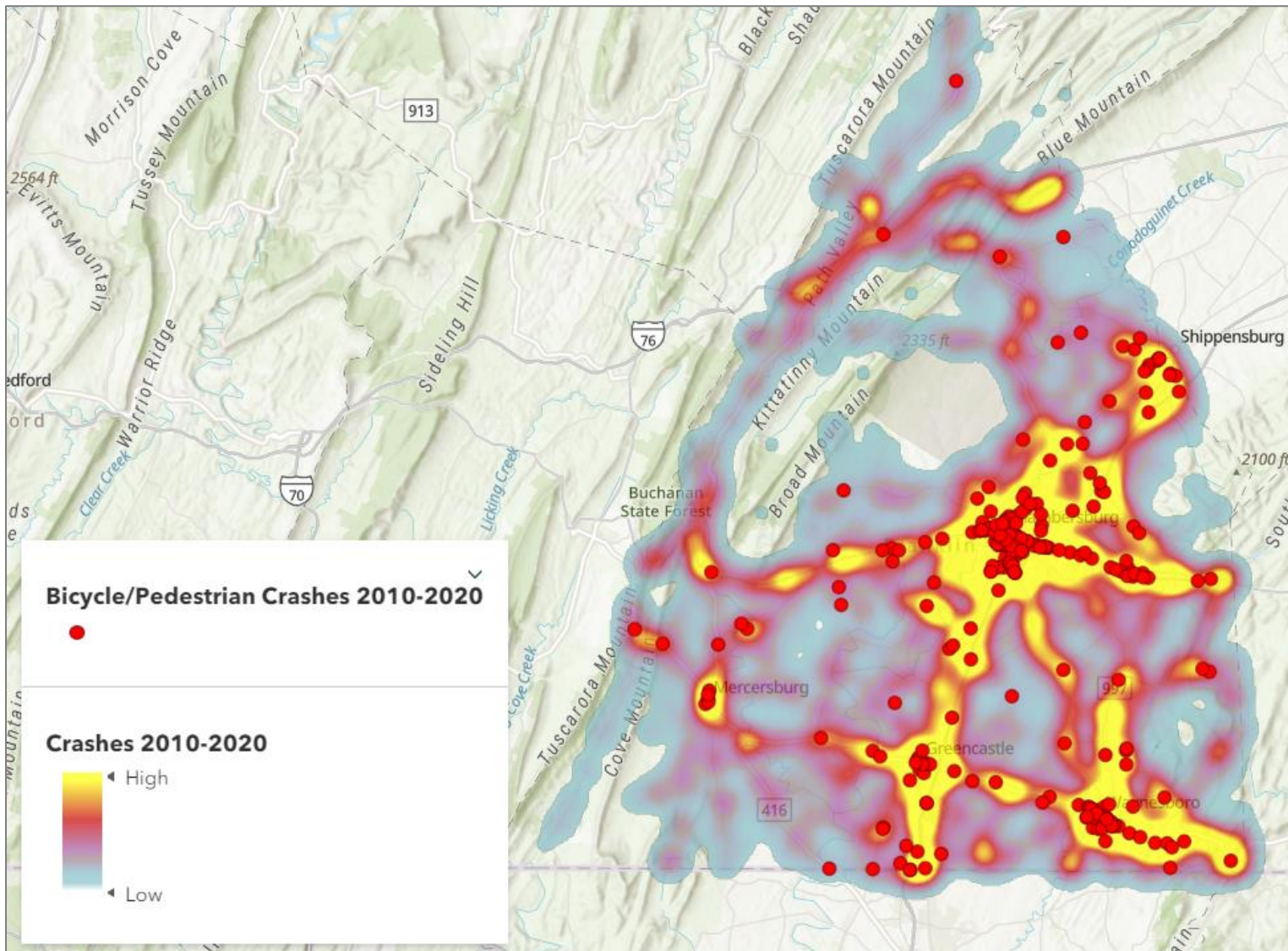
Illumination	Number of Crashes	Percent of Crashes
Dawn	1	1%
Daylight	58	71%
Dusk	3	4%
Dark - street lights	14	17%
Dark - no streetlights	5	6%
Dark - unknown roadway lighting	1	1%

Source: Pennsylvania Crash Information Tool

It should be noted that in more urban areas with higher populations, vehicular volume is also higher and, therefore, may affect the frequency of potential motor vehicle-cyclist conflicts. The higher vehicular volume a route has, the higher frequency a cyclist is likely to encounter a vehicle. This increases the likelihood of a crash while also working to increase stress on a cyclist. This is reflected spatially in **Figure 7**.



Figure 7: Bicycle and Pedestrian Crash Frequency (2010-20)



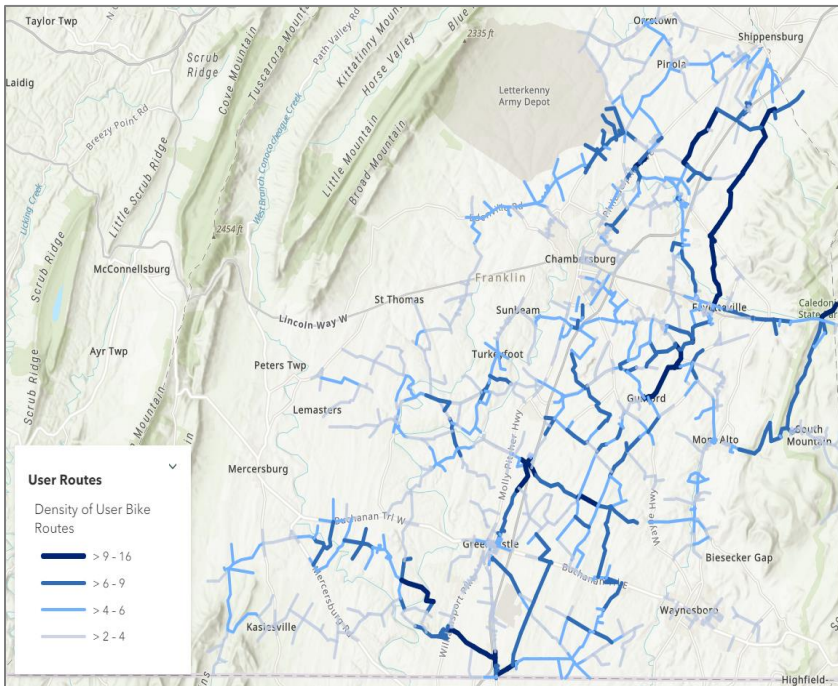
Source: Pennsylvania Crash Information Tool (PCIT)



User Data

User activity data from cyclists throughout the region was aggregated into GIS and displayed as a heatmap. User data was pulled from the Franklin County Cyclist Group's webpage and other sources such as Ride with GPS, Garmin Connect, and Strava. This mapping allowed the project team to highlight frequently travelled routes in the county (Figure 8).

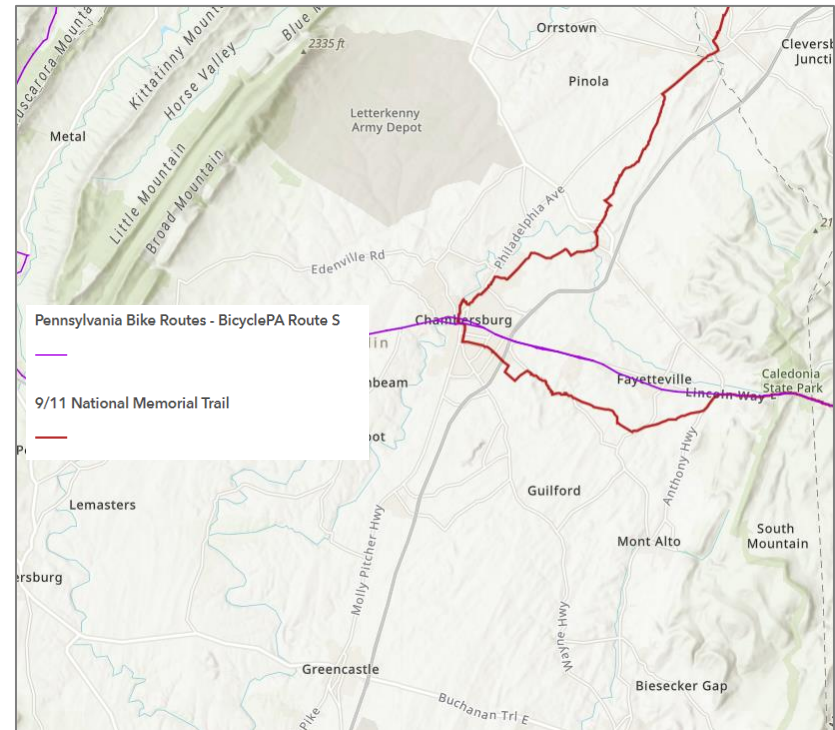
Figure 8: User Route Density



Designated Routes

In addition to Franklin County Cyclist Group's event routes such as the Century Biking Event and Annual Time Trial Course, Franklin County's roadways offer connections to Bicycle PA Route S and the September 11th National Memorial Trail (Figure 9). These routes were also considered as part of the alternative development.

Figure 9: Designated Routes



Alignment Identification

The study originally proposed three alternative alignments for USBR11 and three alternative alignments for the spur route connecting to Shippensburg (Figure 10). These routes were then vetted through data analysis and refined through a stakeholder involvement process and field visits. Results of this analysis were then taken back to the stakeholders for review, revision, and buy-in.

USBR11 Alternatives

At the start of the project, the County had identified a potential USBR11 Route (Alternative 1). Two other alternatives were identified through data analysis and stakeholder input.

- **USBR11 Alternative 1 (27 mi.)**
 - US 11 to US 30 through municipalities centers
- **USBR11 Alternative 2 (30 mi.)**
 - Parallel to Alternative 1 on lower volume and speed state and county routes
- **USBR11 Alternative 3 (23 mi.)**
 - Low-volume and low-speed state and rural county routes

Stakeholder input was requested from several organizations such as Adventure Cycling, Franklin County Cyclist Group, and municipalities within Franklin County along the proposed routes. This feedback helped to determine the final alignment, in addition to an internal ranking of the Alternatives based upon AASHTO and Adventure Cycling Criteria. The ranking table was adjusted from the Florida U.S. Bicycle Route Criteria table to better suit this study.

The three route options were assessed against specific alignment criteria for United States Bicycle Routes and were scored on a scale from 3 (fulfills selection criteria) to 0 (does not contribute to meeting selection criteria). These criteria and each route's scores are provided in Table 4.

Figure 10: US Bicycle Route 11 Alternative Alignments

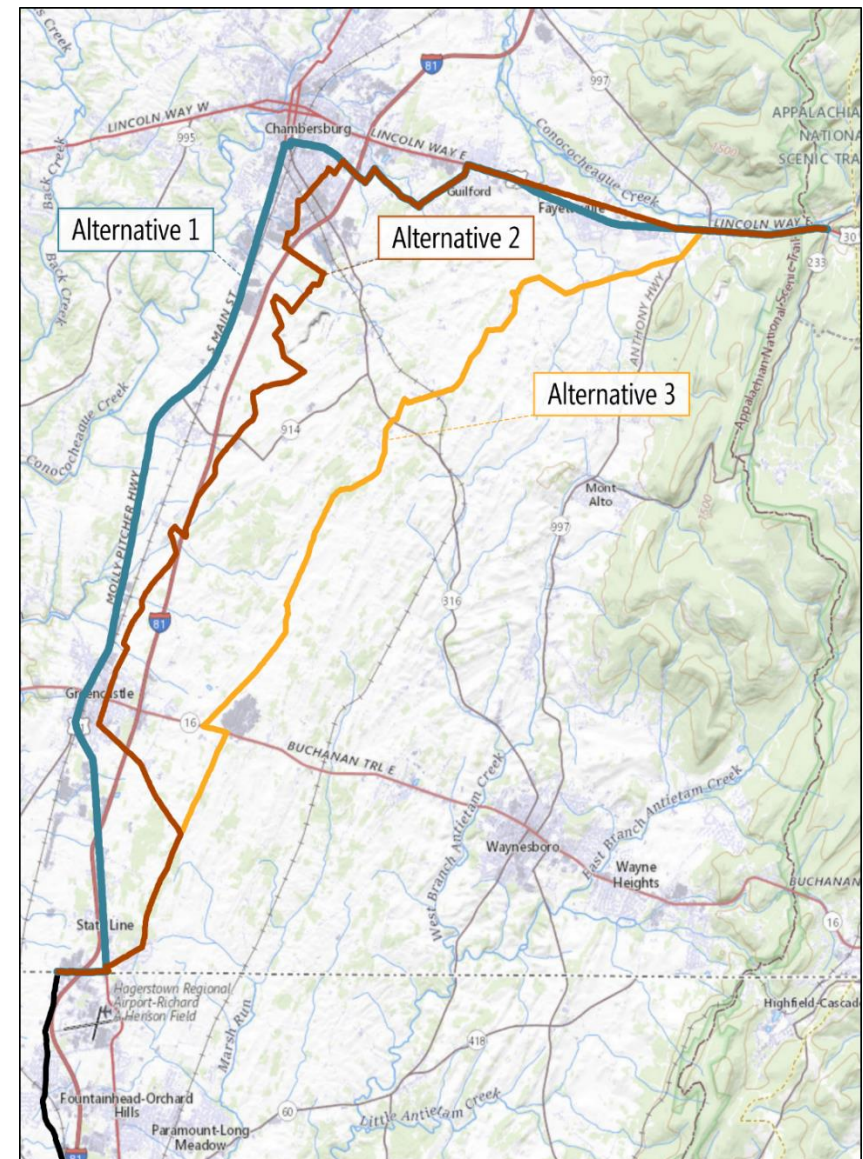


Table 4: United States Bicycle Routes (USBR), Specific Alignment Criteria

Macro Criteria	Alternative 1	Alternative 2	Alternative 3
There is an emphasis on intrinsic scenic and cultural qualities of the corridor itself.	2	2	3
Serves an immediate safety need.	2	0	2
Is cost effective.	1	1	2
Includes or intersects major existing and planned bicycle routes (interstate, cross-state, or intrastate), including both on-road facilities and off-road paths that are suitable for touring bikes and bicycle travel.	3	2	2
Provides access to scenic, cultural, historical and recreational destinations (may not be directly on route but are nearby).	3	2	1
Links metropolitan areas to connect cyclists to transportation hubs or major attractions.	3	2	0
Provides reasonably direct route in connecting cities or attractions along the corridor.	3	1	0
Total	17	10	10
Micro Criteria	Alternative 1	Alternative 2	Alternative 3
Meets established state or local design criteria for bicycle facilities, or the AASHTO Guide for Development of Bicycle Facilities.	3	1	2
Utilizes already established and successful routes or trails when possible.	2	1	2
Provides access to services and amenities. Daily needs include food, water, and overnight accommodations (including camping) at appropriate intervals (40-60 miles). Amenities and services not required daily include restaurants, libraries, and bicycle shops.	3	2	1
Considers difficulty of the region's topography, avoiding extreme climbs and hills. Topography considerations should be balanced against scenic values, points of interest, access to services, and route directness.	2	1	1
Easy to follow with limited turns; is well marked or has easily identified permanent landmarks to enable navigation.	3	0	1
Total	13	5	7

Source: Florida and Georgia DOTs, Adventure Cycling Association Implementation Resources



Shippensburg Spur Alternatives

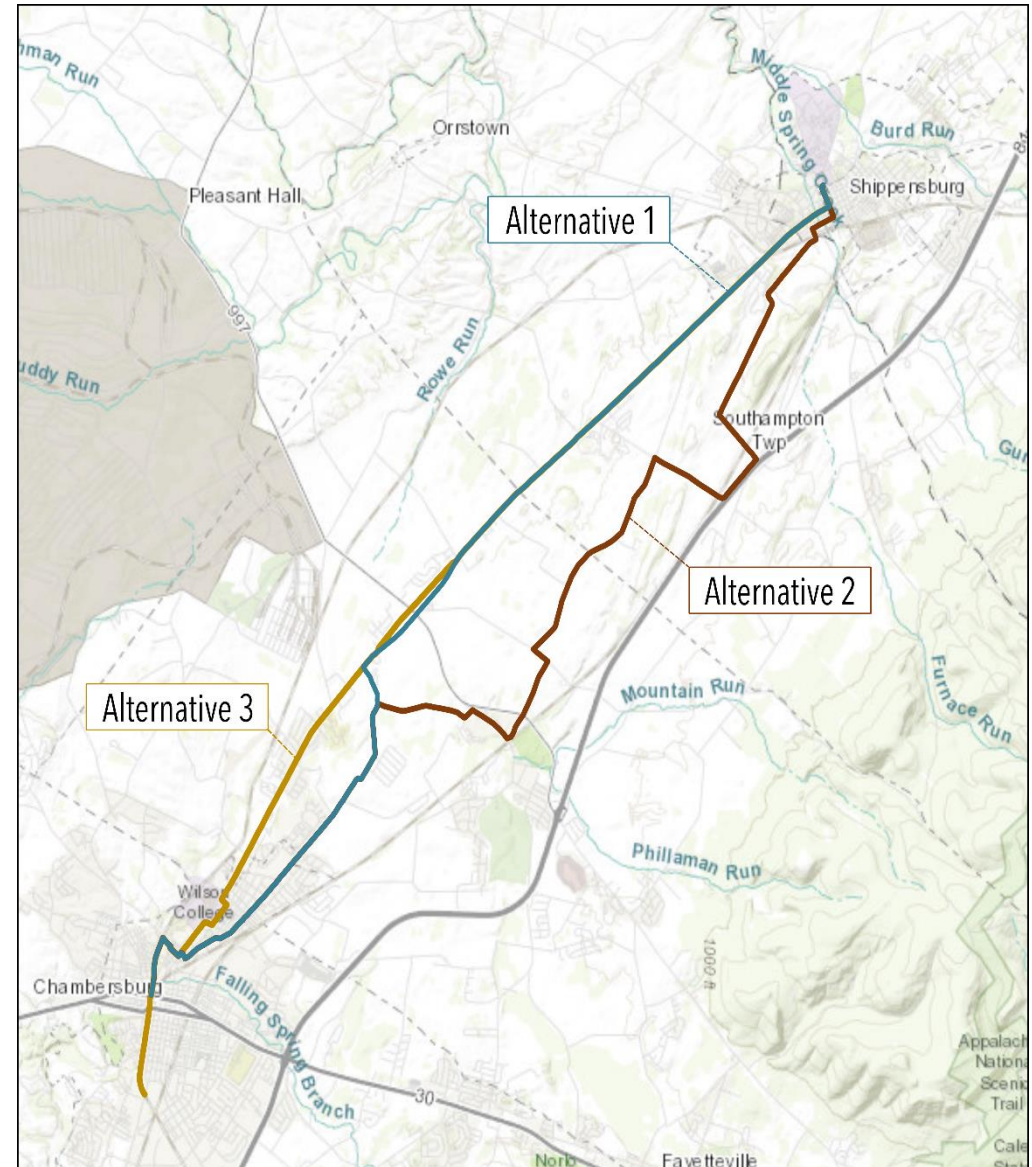
Like the main alignment, three alternative alignments were proposed for a spur route connecting Chambersburg and Shippensburg:

- **Spur Alternative 1 (12 mi.)**
 - Bypasses the Wilson College area with local roadways, connecting to US 11 just outside the Borough of Chambersburg
- **Spur Alternative 2 (30 mi.)**
 - Low-volume, low-speed state and rural township routes
- **Spur Alternative 3 (23 mi.)**
 - Aligned on US 11 from Chambersburg and Shippensburg

As part of its specific route criteria, the US Bicycle Route Task Force established a series of primary and secondary considerations for the designation of numbered bicycle routes on the system. One of these criteria include the designation of spurs to target destinations, such as universities, recreation areas, and multimodal nodes. At the start of the study process, Franklin County and PennDOT had identified a potential spur alignment to connect Shippensburg and Chambersburg (Alternative 1). The other two potential alignments were identified and vetted through data analysis, stakeholder input, and field work.

In addition to the on-road spur alternatives identified above, an off-road option will be available in the future with the extension of the Cumberland Valley Rail Trail from its trailhead on Earl Street in Shippensburg to Chambersburg Borough. In 2022, Shippensburg's Department of Parks and Recreation received \$840,000 for the project. The future extension would follow the former track alignment of the Western Maryland Railroad corridor. Franklin County will continue to monitor the progress of the trail extension project and will collaborate with its partners to connect the trail to the county's active transportation network.

Figure 11: Shippensburg Spur Potential Alignments



US Bicycle Route 11 Recommended Route

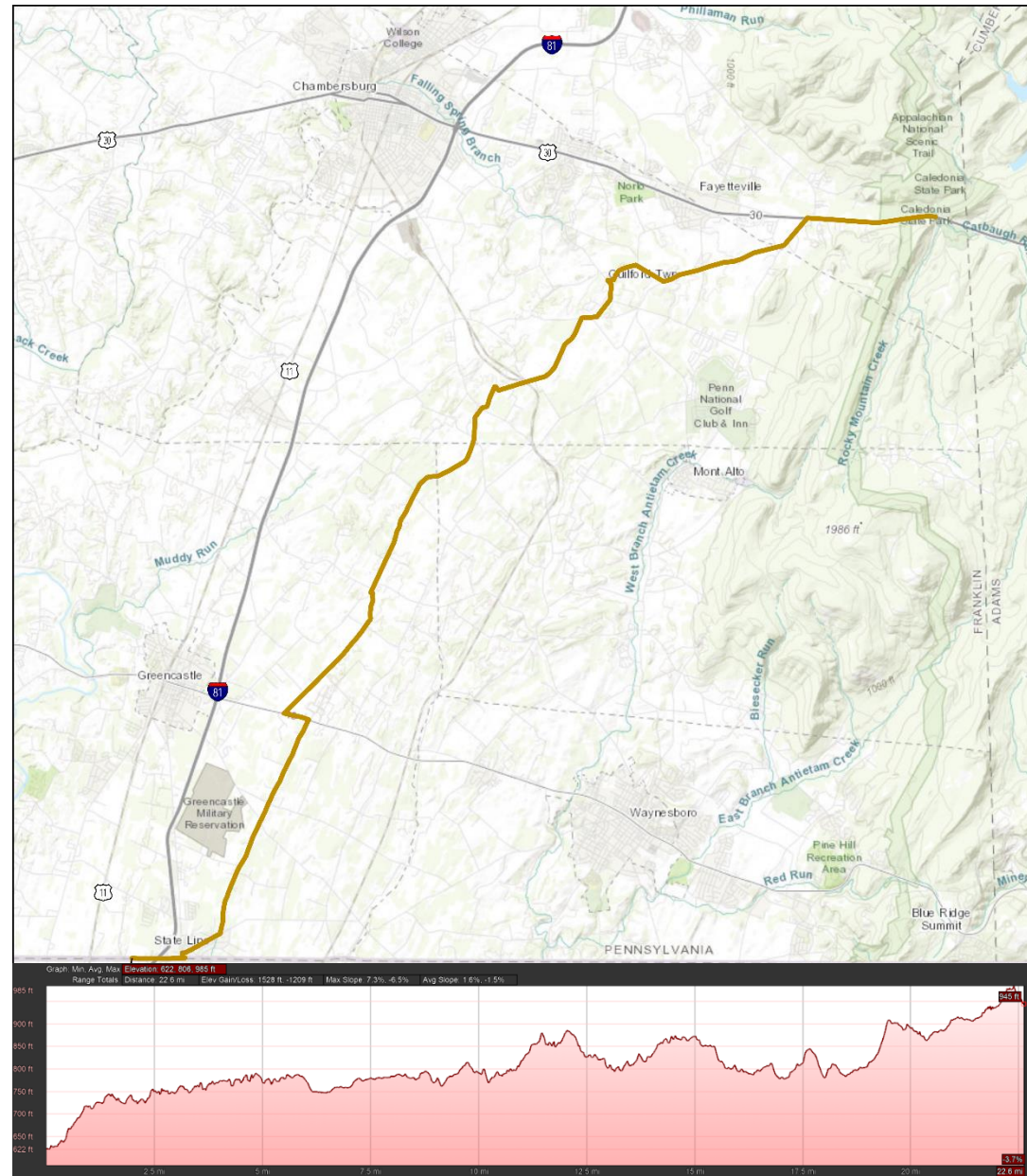
Based on the results of data analysis, field work, and existing conditions, **Alternative 3 (23 mi.)** was selected as the recommended primary alignment. While this recommended alignment does not offer the most direct route, it provides for a safer, scenic experience while connecting users to businesses and amenities along US 30 and attractions such as Caledonia State Park. The route offers lower traffic volumes (both passenger and commercial trucks) and lower speeds along rural routes with rolling elevation and topography.

Alternative 1 provides the most direct route with wide shoulders; however, the route's low-level of service, higher number of crashes, and adjacent industrial development growth makes the route less ideal based on the objective criteria established by the Adventure Cycling Association. Additionally, Alternative 2 was not selected due stakeholder concerns about a high number of turns, making navigation more difficult. Stakeholder outreach results found that cross-country bicyclists typically utilize paper maps and navigational aids, and the high number of turns would result in frequent stops to confirm the route.

The recommended alternative...

- Uses 23 miles of low-volume, low-speed rural roadways
- Connects Maugansville Road (Maryland US Bicycle Route 11 terminus) to US 30 and Caledonia State Park
- Provides access to the county's scenic and rural landscape while remaining in near proximity to urban centers and amenities

Figure 12: Recommended Alignment with Elevation Profile



Source: Strava and Google Earth



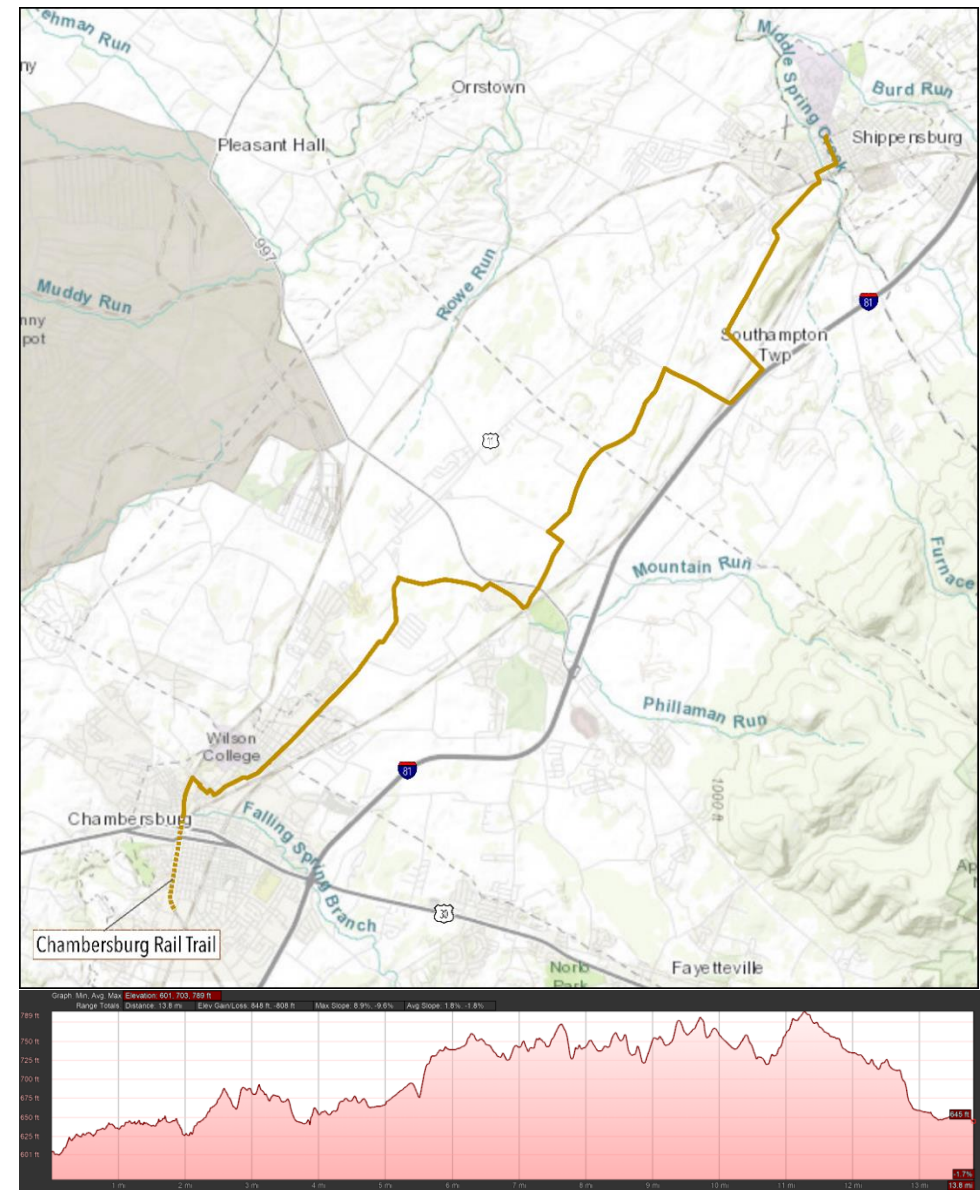
Recommended Shippensburg Spur Route

Based on the results of data analysis, field work, and existing conditions, **Spur Alternative 2 (14 mi.)** was selected as most optimal connection between Shippensburg and Chambersburg boroughs. The recommended alternative for the Shippensburg Spur may not be the most direct and includes more turns than the other two alignment studied; however, the route utilizes roadways that are both low-volume and low-speed, therefore providing ideal traffic conditions for on-road cycling. The route also maintains scenic, rural character, which adds to the overall quality of the cyclist experience.

The recommended spur alignment:

- Uses 14 miles of low-volume, low-speed roadways
- Provides access to urban centers that offer amenities and services as well as multimodal transportation options
- Connects to the Chambersburg Rail Trail, which provides off-road accommodations
- Could serve as a temporary spur alignment with the future development of an extension of the Cumberland Valley Rail Trail (discussed further on page 26 of this report)

Figure 13: Recommended Spur Alignment with Elevation Profile



Source: Strava and Google Earth



Connecting the Recommended Route and Spur

As described previously, the recommended route and spur alignments were selected based on data analysis, field work, and extensive vetting with cycling organizations and municipal stakeholders. While these alignments provide safe conditions for cycling, the two aren't directly connected. To make this connection, cyclists would have to travel into and through Chambersburg Borough to reach the next leg of the route. Data analysis and field work determined that some of the major routes and Borough streets do not provide preferred cycling conditions, with high traffic volumes, little buffer space between cyclists and motorized traffic, and many signalized intersections.

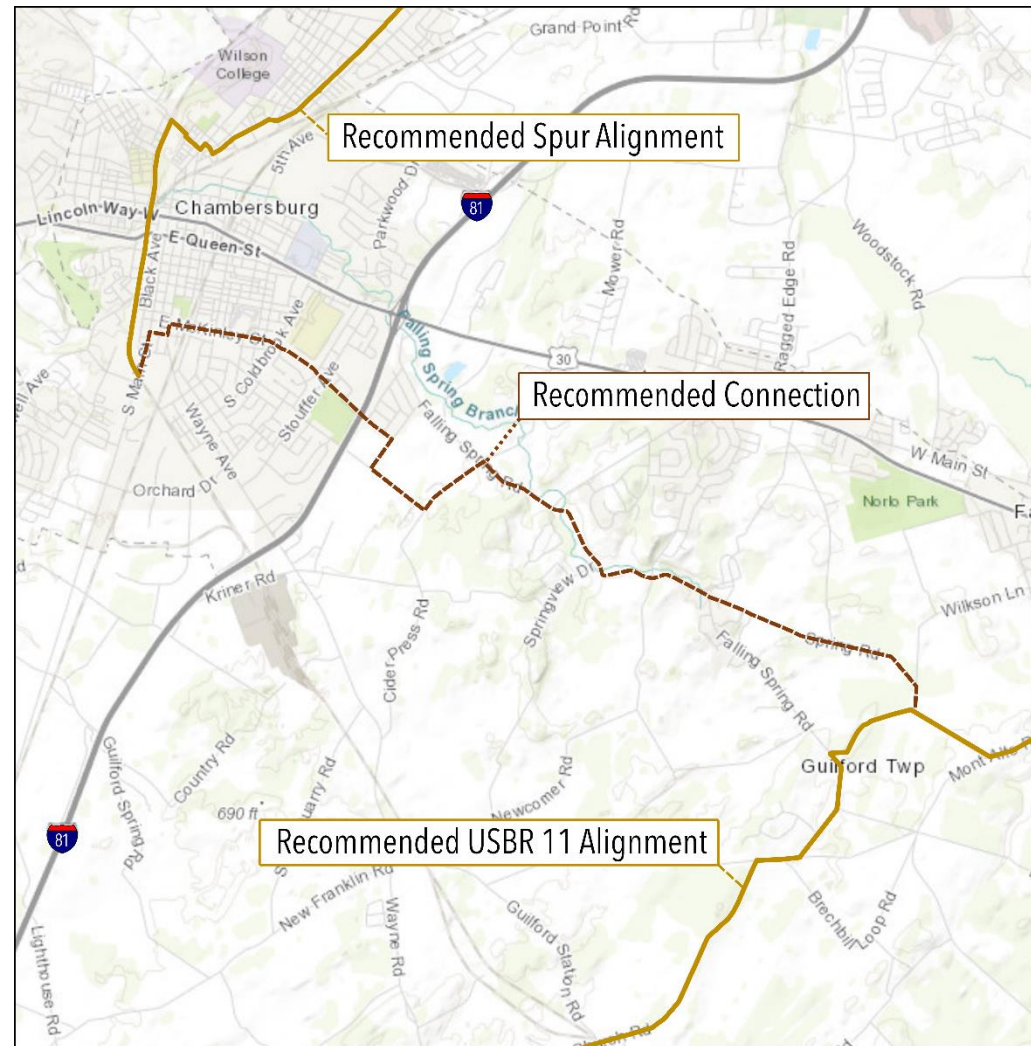
The County assessed other roadways to identify which provide the best solution to close the gap and provide the best experience for users. Based on the routes evaluated, a portion of Alternative 1 was identified as a route with ideal cycling conditions. By incorporating this east-west connection, users will be able to access services and amenities in and around the Chambersburg area.

The connection leverages several lower-volume, lower-speed roadways, including:

- McKinley Street;
- Stanley Avenue Extended;
- Cider Press Road;
- Falling Spring Road; and
- Spring Road.

The recommended connector is shown in **Figure 14**.

Figure 14: Recommended Connector Route between Shippensburg Spur and USBRS Alignments



Locations with Safety Concerns

Along some portions of the preferred alignments, current roadway conditions may not be the most suitable for many cyclists. Acknowledging these conditions, five locations along the recommended route were identified that may be of concern for bicyclist safety. These locations were identified using the Level of Service analysis results while incorporating crash data, stakeholder input, and field view data.

Along the recommended bicycle route alignment, three areas of safety concern were identified:

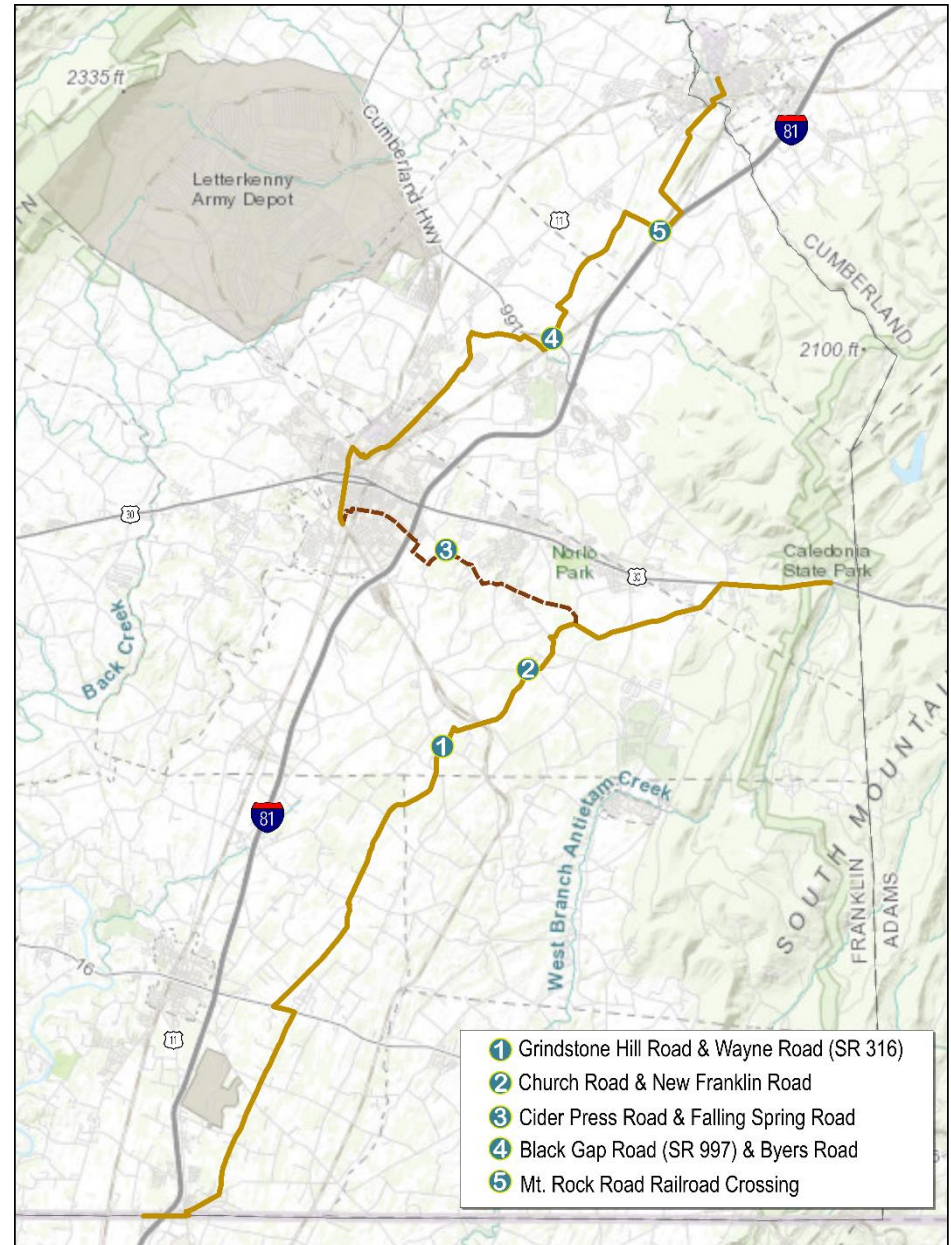
- Grindstone Hill Road (SR 2025) and Wayne Road (SR 316) Intersection
- Church Road and New Franklin Road (SR 2020) Intersection
- Cider Press Road (SR 2027) and Falling Spring Road (SR 2029) Intersection

Along the recommended spur alignment, two areas of concern were identified:

- Black Gap Road (SR 997) and Byers Road Intersection
- Mount Rock Road Railroad Crossings

These areas of concern are shown spatially in **Figure 15** and are described in more detail in the following sections.

Figure 15: Locations with Safety Concerns

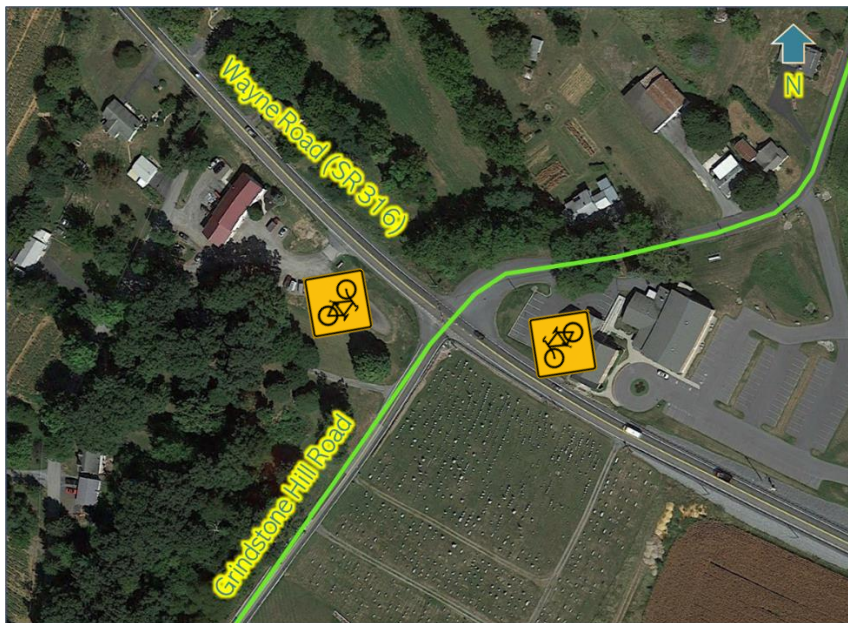


Recommended Route Alignment

Grindstone Hill Road (SR 2025) & Wayne Road (SR 316)

Compared to other areas along the recommended alignment, the intersection of Grindstone Hill Road and Wayne Road in Guilford Township experiences higher levels of traffic, particularly on the Wayne Road (SR 316) approaches. The intersection carries an average of 7,700 vehicles daily and has slight horizontal curvature.

Figure 16: Intersection of Wayne Road and Grindstone Hill Road



Aerial Image Source: Google Earth

To address curvature issues and bring awareness to bicyclists along the route, it is recommended to install two W11-1 bicycle warning signs in advance of the intersection along Wayne Road. One sign would be installed on the eastbound approach, with another on the westbound approach.

Figure 17: W11-1 Bicycle Warning Sign



Figure 18: Wayne Road WB facing Grindstone Hill Road Intersection



Image Source: Google Earth Street View



Church Road & New Franklin Road (SR 2020)

The intersection of Church Road and New Franklin Road is located along the route alignment in Guilford Township. Based on user data, Church Road is frequently used by cyclists. In the past decade, there have been no bicyclist- or pedestrian-involved crashes at the intersection; however, sight distances are obstructed when turning onto New Franklin Road from Church Road.

Figure 19: Intersection of Church Road and New Franklin Road



Aerial Image Source: Google Earth

Like the intersection of Grindstone Hill Road and Wayne Road (SR 316), installation of two W11-1 bicycle warning signs along New Franklin Road (SR 2020) is recommended to increase motorist awareness of cyclists turning onto the route. Since some of the sight distance obstruction is due to vegetation and large trees, trimming back this vegetation and maintaining/removing all obstructions in the right-of-way will improve safety at this intersection.

Figure 20: Church Road Looking Left onto New Franklin Road



Image Source: Google Earth Street View

Figure 21: Church Road Looking Right onto New Franklin Road



Image Source: Google Earth Street View



Cider Press Road (SR 2027) & Falling Spring Road (SR 2029)

The intersection of Cider Press Road and Falling Spring Road is located in Guilford Township and carries traffic volumes reaching nearly 5,000 vehicles per day with 5 percent of those vehicles being trucks. Usage data shows that bicyclists use both roadways in the area. While there have been no bicyclist- or pedestrian-involved crashes at this stop-controlled intersection over the past decade, it is marked as an area of concern due to its high rate of vehicular crashes. This poses implications to bicyclist safety, especially if designated as a national bicycle route.

Figure 22: Intersection of Cider Press Road and Falling Spring Road



Aerial Image Source: Google Earth

A short-term solution to address bicyclist safety is to increase motorist awareness by installing two W11-1 bicycle warning signs on the Falling Spring Road approach, similar to the other two identified areas of concern.

In the long term, if bicycle activity continues to trend upward along the route, the MPO can coordinate with PennDOT on additional intersection improvements (e.g., redesign certain elements of the intersection or implement new controls).

Figure 23: Cider Press Road Eastbound Approach



Image Source: Google Earth Street View

Figure 24: Falling Spring Road Northbound Approach



Image Source: Google Earth Street View



Recommended Spur Route Alignment

Black Gap Road (SR 997) & Byers Road Intersection

The intersection of Black Gap Road (SR 997) and Byers Road, located in Greene Township, experiences traffic volumes of nearly 8,000 vehicles per day with 14 percent being trucks. The intersection is regularly used by bicyclists, according to usage data. While there have been no bicyclist- or pedestrian-involved crashes at this stop-controlled intersection over the past decade, it is marked as an area of concern as the site of several vehicular crashes. This poses implications to bicyclist safety, especially if designated as a national bicycle route since users would be crossing a wide, arterial route with a speed limit of 45 miles per hour. The intersection has horizontal curvature and sight distance concerns, particularly on the southbound approach on Byers Road. Large trees and vegetation obstruct the view when looking left at this approach to the intersection.

Figure 25: Black Gap Road (SR 997) and Byers Road Intersection



Aerial Image Source: Google Earth

To increase motorist awareness, it is recommended to install two (2) W11-1 bicycle warning signs in advance of the intersection along Black Gap Road (PA 997). Additionally, maintaining vegetation and removing obstructions from the right-of-way is critical in improving safety at this intersection. Reducing obstructions and providing advanced warning in the short-term aims to raise situational awareness, making motorists aware that there is bicycle traffic in the area. In the long term, if bicycle activity continues to trend upward along the route, the MPO can coordinate with PennDOT on additional intersection improvements (e.g., redesign certain elements of the intersection or implement new safety countermeasures).

Figure 26: Byers Road Southbound Facing Black Gap Road Westbound



Image Source: Google Earth Street View



Mount Rock Road Railroad Crossing

Per user data analysis, Mount Rock Road in Southampton Township is regularly used by bicyclists because of lower traffic volumes and speeds. The roadway has also had little crash history, with one pedestrian crash in 2015. Mount Rock Road also intersects with Norfolk Southern's Lurgan Branch, with one at-grade crossing along the spur alignment. At-grade railroad crossings are a common barrier for bicycle and pedestrian movement, posing safety risks.

Figure 27: Mount Rock Road Railroad Crossing Location



Aerial Image Source: Google Earth

At the time of study development, the at-grade crossing located near Kalmbach Feeds did not have any advanced railroad warning mechanism. In the short term to increase both motorist and cyclist awareness, it is recommended that W10-1 grade crossing advance warning signage be installed so bicyclists can prepare to cross appropriately (Figure 29). If bicycle activity starts to increase in the area, Franklin County can coordinate with PennDOT and Norfolk Southern to discuss long-term infrastructure solutions at the crossing to improve safety for all users that use the crossing.

Figure 28: Mount Rock Road Westbound at NS Crossing



Image Source: Google Earth Street View

Figure 29: W10-1 Grade Crossing Advance Warning Sign



Implementation

Safety Countermeasure Implementation

The recommended signage at the five locations of safety concern described in the prior section provide a low-cost, short-term way to improve bicyclist safety. Cost estimates for the signage are described in **Table 5**.

Table 5: Signage Cost Estimates

Sign Type	Unit	Quantity (Count)	Quantity (Final)	Unit Cost	Item Cost
Post Mounted Signs (W11-1)	SF	8	50	\$80	\$4,800
Post Mounted Signs (W10-1)	SF	4	28.26	\$80	\$2,712
TOTAL COST					\$7,512

The recommended signage is not meant to be inclusive of all design considerations for all locations. As bicycle traffic increases on the designated route, additional infrastructure improvements may be necessary to improve bicyclist safety, reduce conflicts with motorists, and improve the overall quality of the bicyclist experience. Additional evaluation of long-term infrastructure strategies is recommended to determine feasibility prior to implementation. These evaluations could include traffic operations analysis, improvement designs, specifications and cost estimates, and ongoing local community and stakeholder outreach. The intent is to have regard to the individual guidelines when implementing bicycle improvements at specific locations to arrive at the most appropriate solution. In some cases, an interim solution may be appropriate where the desired long-term solution cannot be achieved in the short- or mid-term, provided that the interim solution meets users' needs and safety considerations.

In developing long-term strategies for bicycle accommodations, consideration should be given to resources such as:

- AASHTO's Guide for the Development of Bicycle Facilities
- PennDOT Publication 13: Design Manual Part 2 - Contextual Roadway Design
- FHWA Bikeway Selection Guide

Dedicated cycling space outside of the mixed vehicular traffic environment has proven to hold the greatest influence over stress on the bicyclist. Other strategies that could be considered with further evaluation include:

- Installing pavement markings and signage on existing paved shoulders.
- Physically widening the roadway as necessary to include bicycle facilities.
- Restriping the roadway to provide additional room (i.e., road diets).
- Removing a travel lane to provide additional room (i.e., road diets).

Near-Term Considerations

Other multimodal transportation efforts were identified through interviews with stakeholders and discussions with Franklin County staff. These were taken into consideration when developing the potential route alignments as part of the study.

September 11th National Memorial Trail

The September 11th National Memorial Trail (9/11 Trail) links the three 9/11 national memorials in New York City, Washington D.C., and Shanksville, Pennsylvania, via a proposed network of off-road multi-use trails, greenways, scenic roads, and byways in the memory of those lost in the tragic attacks in 2001. This network includes a series of existing, off-road trails with several temporary on-road segments, as shown in **Figure 30**. On-road segments include those that traverse Franklin County. It was imperative that these efforts and considerations align with the proposed 9/11 Trail as much as possible.



Figure 30: September 11th National Memorial Trail Network



*Green segments delineate completed off-road sections, while red segments represent temporary, on-road routes.

Source: September 11th National Memorial Trail: Northern Pilgrimage through Pennsylvania Trail Alignment Study Report (2015)

Future Implementation Considerations

Long-term, planned improvements were noted through stakeholder interviews. These projects will contribute to safety, directness, and overall quality of USBR 11 upon completion.

Cumberland Valley Rail Trail

Currently, the Cumberland Valley Rail Trail runs for 13 miles from Shippensburg to Newville. The trail's goal is to eventually connect the Shippensburg Extension (as referred to in this study as the Shippensburg Rail Trail) to the Chambersburg Rail Trail, and then south into Maryland. Current initiatives and conversations are taking place to complete this expansion. In 2022, the Shippensburg Department of Parks and Recreation received \$840,000 in Transportation Alternative Set-Aside (TASA) funding to complete an extension of the Cumberland Valley Rail Trail along the Western Maryland Railroad corridor.

Through stakeholder interviews and discussions with Franklin County staff, there is a desire to relocate the Shippensburg spur alignment to the eventual

Cumberland Valley Rail Trail expansion and would provide cyclists with a more direct, scenic, and safer route to the Shippensburg Rail Trail.

Figure 31: Bikers on the Cumberland Valley Rail Trail near Newville, PA



Image Source: [Visit Cumberland Valley, Pennsylvania](https://www.visitcumberlandvalley.com/)

Chambersburg McKinley Street Complete Streets Evaluation

McKinley Street currently serves as the east-to-west connection for Alternative 1 and is designated as Priority Linkage in the Borough's 2018 Pedestrian and Bicycle Improvements Plan. In this plan, improvements to McKinley Street are included in the list of capital improvement projects. The plan describes desired multimodal improvements to McKinley Street as follows:

This critical connection would include on-road or off-road improvements, or a combination of both to provide a bicycle friendly link between the Middle School Campus/Memorial Park, the High School Campus, Mike Waters Park, and the existing Rail Trail. Improvements could include removal of existing on-street parking, bicycle lane, sidewalk improvements, cross walks, intersection improvement, pavement markings and signage.



Next Steps

The overarching goal is to develop a statewide alignment for US Bicycle Route 11. Franklin County's study serves as just one piece of the puzzle. Franklin County MPO and PennDOT can encourage coordination with neighboring MPO regions (e.g., Adams and Harrisburg) to create a comprehensive vision for what the route could entail in south central Pennsylvania and beyond. This can be done by sharing lessons learned throughout the study process, allowing others to tailor any future bicycle route evaluations to fit their region's landscape and needs.

Moving forward, Franklin County MPO can use the study results to coordinate with PennDOT on applying for US Bicycle Route designation with AASHTO. Implementation considerations, such as infrastructure improvements, do not need to be completed prior to a national bicycle route designation; however, the MPO should remain proactive in ensuring bicyclists are properly accommodated through its planning and programming processes. Upon designation, Franklin County should continue ongoing public and stakeholder engagement to monitor bicycling conditions as traffic increases along the route. As conditions change, the County can work with PennDOT to submit a recommended revision to the route alignment to AASHTO or pursue further evaluation of infrastructure improvements (e.g., intersection redesign, operational improvements, etc.).



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I N T E R N A T I O N A L