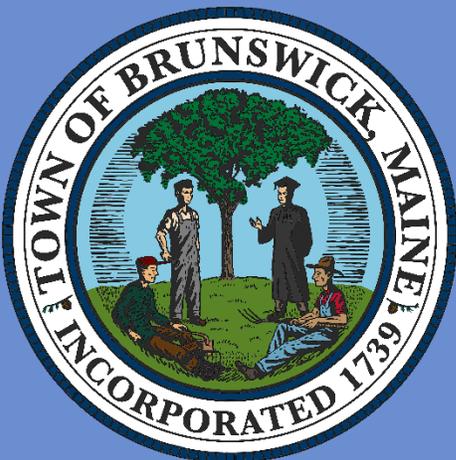




# *Town of Brunswick*

## Bicycle and Pedestrian Improvement Plan 2020 Update



# Acknowledgements

This update of the Bicycle and Pedestrian Improvement Plan is the result of the efforts of the Brunswick Bicycle and Pedestrian Advisory Committee and the Town of Brunswick staff.

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# 01: Introduction



# Multi-Modal Transit Improvements: Planning for Bicyclists and Pedestrians

The Town of Brunswick is committed to improving the quality of life of its residents and visitors by providing multi-modal transit infrastructure that builds a safe, accessible, and healthy community. In this context, multi-modal transit refers to transportation by car, truck, boat, bicycle, and pedestrian modes including walking, running, and wheelchair use. The focus of this *Bicycle and Pedestrian Plan 2019 Update* is to identify transit areas, planning goals, and plan implementation strategies for sustainable biking and pedestrian transit conditions in Brunswick that foster town vitality and yield significant economic, environmental, social, and health benefits.

Increasing Brunswick’s bicycle and pedestrian resources provides a much-needed alternative to automobile travel, easing traffic on town streets, reducing carbon output, and improving local air and water quality. The benefits of improved bicycle and pedestrian infrastructure reach all community members, and the Brunswick Bicycle and Pedestrian Advisory Committee (BBPAC) hopes that one day a middle-school-aged child will be able to walk or bicycle safely and comfortably anywhere in Town.

Brunswick is an attractive town for college students and young people and is popular with retirees looking for a comfortable life on the Maine coast close to amenities. Improved infrastructure for pedestrians and bicyclists will better serve these groups who are less reliant on cars and more likely to choose alternative forms of transit.

Bike and pedestrian improvements should support the overall cohesiveness of Brunswick’s transit systems. Bike and pedestrian infrastructure should connect to other transit systems, both public and private, and should be tied into new projects and improvements of existing resources.

This plan aims to outline an argument for increasing and improving bike and pedestrian resources and infrastructure in Brunswick and recommend and prioritize future projects. This plan presents short and long-term goals and should be updated periodically to reflect progress and change.



# Brunswick Bicycle and Pedestrian Improvement Plan History & Use

The Brunswick Bicycle and Pedestrian Advisory Committee (BBPAC) produced the October, 1998, Brunswick Bicycle and Pedestrian Improvement Plan after three (3) years of work on the project. An update of the plan began in 2002 at the request of the Town Council. The BBPAC completed the second update of the plan in March, 2004, and the Town Council adopted the plan in March, 2005. A brief update to the plan was added in 2016.

BBPAC intends for this plan to be a resource for the Town Council, School Board, Planning Board, Recreation, Police, Public Works and Planning Departments, land developers, businesses, non-profit organizations, individual citizens, and anyone else who is interested in promoting human-powered transportation in Brunswick. BBPAC understands that this plan can only reflect the conditions that exist at the time it is written - periodic reviews and amendments of the plan are necessary, desirable, and expected.

While working on the 2002 plan update, the Committee formulated a simple but significant long-range goal of a middle school aged child being able to walk or bicycle safely anywhere in town.



**See it on your walk or ride:** The Androscoggin River along the Bike Path.

# Benefits of Bicycle and Pedestrian Infrastructure

Improving bicycle and pedestrian infrastructure brings many benefits to the community and individuals. Appendix I provides a more comprehensive analysis of economic, environmental, and health benefits with discussion of research and references.

## Health Benefits

Choosing a human-powered alternative to driving a car benefits a person's health by increasing their daily physical activity. Traveling to school on foot or by bike is particularly important for establishing healthy habits in young children. Reducing car use can reduce asthma rates by improving air quality. Improving bike and pedestrian infrastructure can also reduce crash rates, a very tangible benefit to public health. Bike and pedestrian infrastructure also improves the social health of a community by increasing in-person interactions between friends and acquaintances.

Individuals save money on car expenses by increasing their biking and walking, they can spend more money in local economies. Homeowners benefit from increased house values when bicycle and pedestrian resources improve in their area, and towns save money on road repair when more individuals bike or walk over driving. Bicycle and pedestrian friendly towns also attract more young college grads who improve local workforces. Importantly, bicycle and pedestrian infrastructure can reduce economic exclusion by allowing individuals unable to afford a car to reach jobs, stores, and resources.

## Economic Benefits

Improved bicycling and pedestrian facilities economically benefit a variety of groups. Towns with strong pedestrian and bike infrastructure attract more tourists who will spend money in town. Bike and pedestrian friendly areas are more attractive to stores and bring in more customers to shop. When

## Environmental Benefits

Redirecting vehicle traffic to bike and pedestrian travel reduces CO<sub>2</sub> output which contributes to global warming. Reducing car travel and the pollution it creates also improves air and water quality. Additionally, studies show that environmentally friendly communities make for happier people.

# Relationship to Other Plans & Policies

The goals and action items of the Bicycle and Pedestrian Improvement Plan Update relate to other Town and State plans and national policies. Considering how this plan ties into others provides greater motivation for the objectives of the Bicycle and Pedestrian Improvement Plan.

## Comprehensive Plan

The 2008 Comprehensive Plan Update outlines policy goals and implementation strategies to steer future change and development in Brunswick. Consideration of bicycle and pedestrian infrastructure is a part of the 2008 Comprehensive Plan, and the in-progress 2020 Comprehensive Plan Update will tie in the goals of the 2019 Bicycle and Pedestrian Improvement Plan as well. The following policy areas connect to bicycle and pedestrian infrastructure:

**Policy Area 4:** Support the Development and Maintenance of Infrastructure that Promotes Livable Neighborhoods and the Desired Pattern of Residential and Commercial Growth.

**Key Objective #2** specifically addresses the use of sidewalks and paths to promote Brunswick’s desired pattern of growth and the safety of automobiles, pedestrians, and bicycle traffic. **Action 4** specifically references the improvements of roads and sidewalks per the 2004 Bicycle and Pedestrian Improvement Plan. **Action 5** recommends the adoption of new road standards for new streets that will accommodate for interconnectivity and sidewalks.

**Policy Area 5:** Encourage a Diversity of Housing Types in the Designated Growth Area and Facilitate the Preservation and Development of Affordable and Workforce Housing.

While this section does not directly reference provisions for pedestrians and bicyclists, providing for parking spaces adds to the cost of housing, particularly in downtown regions, and cars are expensive to maintain. Bicycle and pedestrian resources can improve the quality and usefulness of affordable development.

**Policy Area 6:** Protect Open Space and Natural Resources and Provide Outdoor Recreational Opportunities.

**Key Objective 5** addresses providing adequate recreational facilities for current and future needs. **Actions 2 & 4** reference the 2004 Bicycle and Pedestrian Improvement Plan as part of this effort in the context of the redevelopment of the Naval Air Station and creating interconnected trails through Brunswick.

**Policy Area 7:** Promote an Economically Viable, Attractive Downtown.

**Key Objective 2** aims to make the Downtown District safer and more pedestrian friendly, specifically mentioning the 2004 Bicycle and Pedestrian Improvement Plan as a guide. **Key Objective 4** aims to make the Downtown more attractive, inviting, and the hub of community activity; bike and pedestrian infrastructure support these goals by increasing social interactions (see "Benefits").

**Policy Area 8:** Promote a Diverse and Healthy Local Economy.

As outlined in the above in "Benefits," improving bicycle and pedestrian resources directly affect economic outcomes, particularly the vitality of downtown shops, the concern of **Key Objective 5**.

## Zoning Ordinance

Descrip

- I. Parts that apply

## Cooks Corner Design Standards

Descrip

- I. Parts that apply

## Appendix: Complete Streets Policy

Descrip

- I. Parts that apply

## Capital Improvement Plan

The 2020-24 Capital Improvements Plan (CIP) outlines Town infrastructure projects for the coming years, many of which address bicycle and pedestrian infrastructure and would affect bicycle and pedestrian activity.

**Androscoggin River Pike Path Extension-** The proposed 2.6-mile extension of the existing bike path would extend its terminus to Petersen Lane, creating a connection for the East Coast Greenway between Brunswick and the Sagadahoc Bridge. This project would allow for bike commuting between Bath and Brunswick.

**William Fitzgerald Bike Path Connection-** A path constructed from the new Fitzgerald Recreation and Conservation Area to the Androscoggin Bike Path would connect the land to downtown Brunswick. This would provide an alternative transportation connection to downtown Brunswick for the neighborhoods around the conservation land which are currently difficult to access other than by car.

## Recreation, Trails & Open Space Management Plan

The Recreation, Trails & Open Space Management Plan guides “the management of the Town of Brunswick public benefit conveyance lands, public access and open space properties [resulting from the closure of the Naval Air Station] for the purposes of recreation, trails and open space conservation.” Sections of the plan address the establishment of trail systems which serve bicycling and pedestrian activities.

The **Trails and Recreation Opportunities** section, which outlines standards for the establishment of trails the **Kate Furbish Preserve Management Plan**, details the offerings of trails available on the property. The **Perimeter Trail System Conceptual Plan** addresses the resources offered by the Brunswick Landing trail. The Perimeter Trail’s value extends beyond recreation, and it serves as a transit connection to Brunswick Landing which is otherwise difficult to access by bike.

## Master Plan for Downtown Brunswick & the Outer Pleasant Street Corridor

The 2011 Master Plan recommends ways to improve the experience and function of downtown Brunswick. Short-term and long-term goals address pedestrian and vehicular movement to improve the pedestrian facilities in Brunswick’s various areas.

Pedestrian-related improvements focus on minimizing curb cuts, improving crossings, and traffic calming features. Public opinion surveys identify the areas of Maine Street and Pleasant Street that need the most. Many of these areas are selected in part for their poor bicycle and pedestrian infrastructure.

## National Register of Historic Places

The National Register of Historic Places identifies buildings and places across the country with historical significance. Many of Brunswick's historical places are in areas where people enjoy biking or pedestrian activities, adding to the areas' attraction.

**Crystal Spring Farm-** Crystal Spring Farm is a popular destination for visitors to the farmers' market and trail system. It is important to consider Crystal Spring's accessibility by bike and pedestrian: Pleasant Hill Road, which provides access to the farm, is notoriously busy and without strong bike and pedestrian infrastructure.

**Federal Street Historic District-** The Federal Street Historic District provides a visually interesting environment for pedestrians and cyclists off Maine Street.

**First Parish Church-** The Downtown landmark creates a focal point to the end of Maine Street; however, the church is surrounded by a tangle of roads.

**Lincoln Street-** Lincoln Street provides a quiet counterpart to busy Maine Street and features cobbled sidewalks.

**Pennellville Historic District-** The Pennellville historic district is particularly relevant to bicycle and pedestrian planning due to its popularity with cyclists. The quiet, rural roads attract both sport and recreational cyclists.

**St. Paul's Episcopal Church-** This Pleasant Street church sits next to Curtis Memorial Library, forming block of the street attractive to pedestrians.

## Brunswick Naval Air Station Reuse Master Plan

The Reuse Master Plan outlines existing conditions and plans for the full redevelopment of the former Brunswick Naval Air Station. A space for jobs and housing, Brunswick Landing needs a multimodal transit network that will accommodate pedestrians, bicyclists, and cars. The plan considers transportation networks and the need for pedestrian infrastructure; however, an outline for improving such infrastructure is not present.

## MaineDOT Work Plan

The MaineDOT Work Plan presents the Maine Department of Transportation’s planned improvements across the state for the next three years. The plan lists projects planned for Brunswick; the largest of which is the \$16 million replacement of the Frank J. Wood bridge. DOT plans also include four pedestrian activated flashing crosswalks on Maine Street which will have a direct effect on pedestrian safety in downtown Brunswick.

DRAFT

# Brunswick Bicycle and Pedestrian Advisory Committee (BBPAC)

In 1995, the Town Council created the Bicycle and Pedestrian Advisory Committee (BBPAC). BBPAC was charged with the tasks of evaluating existing bicycle and pedestrian conditions and recommending improvements to make Brunswick more bicycle and pedestrian friendly. The committee continues to advise on the biking and walking conditions in Brunswick and work on related projects.

## **Mission**

The mission of the BBPAC is to advocate and work towards improving bicycle and pedestrian networks in Brunswick. It will accomplish this by:

1. Using the Town's Complete Streets Policy as adopted by the Town Council in 2016 as guidance while working with the Town Manager, the Departments of Planning and Development, Engineering, Public Works, Police, and Parks and Recreation to prepare an annual schedule of improvements to be included in the Capital Improvement Plan (CIP).
2. Acting as a resource for Town officials and the community on bicycle and pedestrian issues regionally and nationally and sharing this information with others.
3. Making recommendations as warranted on proposed projects requiring development review by the Planning Board.
4. Presenting to the Town Council an annual report on the Committee's activities and the state of the non-vehicular travel in the Town.

## **Membership & Meetings**

The Town Council appoints seven citizens to the BBPAC. One member of the Committee is a Town Councilor. Committee members serve for three (3) years and may serve an indefinite number of terms through reapplication. Committee meetings are held once a month at the Brunswick Town Hall.

# Recent Bicycle & Pedestrian Improvements

BBPAC and a number of other groups and agencies have undertaken projects to improve Brunswick's bike and pedestrian resources. While there is more work to do, many noteworthy projects have been completed to improve Brunswick's bicycle and pedestrian safety in the past 20 years.

- ❖ Curb extensions and elevated crosswalks on Maine Street
- ❖ Bowdoin College recognized as a Bike Friendly University in 2013
- ❖ Recognition by the League of American Cyclists as a Bronze Level Bicycle Friendly Community
- ❖ Formation of a Safe Routes to School (SRTS) Working Group
- ❖ Honorable Mention as a Walk-Friendly Community
- ❖ Opening of three points of bicycle and pedestrian access to Brunswick Landing
- ❖ Striping of Federal Street to create a bicycle lane and a sharrow
- ❖ Repaving, striping, and shoulder widening of sections of the Mere Point Road to the Mere Point Boat Launch
- ❖ Pedestrian activated crossings at Mill Street and Cushing Street, around Bowdoin along Maine Street and Harpswell Road
- ❖ Traffic calming raised crosswalks on College Street
- ❖ Bicycle activated signal technology installed at intersections of Bath Road and Harpswell Road and Pleasant Street and Union Street
- ❖ Repaving of Greenwood Road
- ❖ Bike lane striped at Maquoit Road and Maine Street intersection

- ❖ Signage and road surfacing routing cyclists off Route 1 and through town provided by Merrymeeting Wheelers
- ❖ Erection of signage reminding motorists of the three-foot law, initially provided by the Merrymeeting Wheelers and subsequently by M.D.O.T.
- ❖ Permanent addition of a Town Councilor to Brunswick Bicycle and Pedestrian Advisory Committee
- ❖ Instillation of two-popup projects at Bath Road and Sills Drive and on Union Street in collaboration with Bowdoin College and the Bicycle Coalition of Maine
- ❖ Addition of two bike lanes on the new Landing Drive



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# 02: Existing Conditions, Goals & Action Items



# Inventory of Current Conditions & Related Goals

The following section describes and analyzes bicycle and pedestrian issues in Brunswick’s transit areas, which range from the multi-lane Cooks Corner to secluded forest paths.

Freeport (southwest), Durham (west), Topsham (north), Bath (east), and Harpswell (south) border Brunswick. U.S. Interstate I-295, U.S. Route 1, Maine Routes 24, 24B, and Route 123 cut through Brunswick and provide access by vehicle to surrounding towns. Regional trail systems in Brunswick provide designated on-street bicycle ways and some off-street bicycle and pedestrian paths. A portion of the East Coast Greenway (ECG), a 3,000-mile long bicycle and pedestrian route from Calais, Maine to Key West, Florida,



The East Coast Greenway along Woodside Road.

runs through Brunswick. While public streets form most of the ECG in Brunswick, the Androscoggin River Trail provides paved off-street bicycle and pedestrian access between Brunswick’s downtown and Topsham. At the time of this plan update, the Maine legislature is considering a bill to create the off-street Merrymeeting Trail from Gardiner to Topsham. This trail system would connect the ECG

to the Kennebec River Rail Trail in Augusta, Hallowell, Farmingdale, Gardiner, and the Androscoggin River Trail in Brunswick.

While many of Brunswick’s roads and trails are popular with pedestrians and bikers, safe pedestrian and bike infrastructure is not present everywhere in town. In fact, many areas present substantial challenges or dangers to pedestrians and cyclists.

# Brunswick's Transit Areas

**1. Downtown & Inner Pleasant Street**

**2. Outer Pleasant Street**

**3. Brunswick Landing & Cooks Corner**

**4. Rural Roads**

**5. Schools & Surrounding Neighborhoods**

**6. Trails**

**7. Watersheds in Transportation Corridors**

## Downtown & Inner Pleasant Street

The Downtown & Inner Pleasant Street transit area includes Maine Street, the streets surrounding Maine Street to Union and Federal Streets, and the inner section of Pleasant Street from Maine Street to Stanwood Street.

Downtown & Inner Pleasant Street contains shops, restaurants, food trucks, a seasonal farmers' market, and classic New England neighborhoods listed on the National Register of Historic Places (NRHP) including Federal Street Historic District, Brunswick Commercial Historic District, Lincoln Street Historic District, and the Androscoggin Swinging Bridge.

Most sidewalk sections on Maine Street and inner Pleasant Street are wider than the minimum 5-foot wide Americans with Disabilities Act (ADA) standard. Downtown sidewalk areas accommodate pedestrians, bicyclists, store entrances, sandwich board sign advertisements, street trees, and public art. The streets around Maine Street, including Union, Federal, and the perpendicular streets in between, all have sidewalks for pedestrians. Many crosswalks bisect Maine Street, and a few are raised on a diagonal with the street. Two crosswalks at the intersection of Pleasant and Maine Streets have timers and signals for pedestrians.

Inner Pleasant Street is currently one-way from Mill Street and Stanwood Street eastbound. Incoming vehicle traffic to outer Pleasant Street approaches from Route 1 from Freeport, Bath, and Topsham (via Maine Street); and from areas north and south on Interstate I-295.

Downtown Brunswick has a hub of public transportation at Brunswick Station with connections to the Amtrak Downeaster train, and local and regional buses. The downtown area is serviced by the local Brunswick Explorer which provides connections to Cooks Corner, Baribeau Drive, Thornton Oaks, and Parkview Medical Center, among other stops. The Metro Breez bus connects to Portland from multiple locations in the Downtown area. Pedestrian and bicycle links to such public transport is stronger in the Downtown Area, and the Brunswick Station has wide sidewalks and contrasting material crosswalks. Brunswick Station also features ample bike racks under the roof of the building's breezeway.

The Downtown & Inner Pleasant Street area presents problems for pedestrians and bikers. The entirety of Maine Street is inaccessible to bicyclists: there are no bike lanes and angled parking creates a danger to any cyclists attempting to ride in the road. Ideally bicyclists would use Union or Federal Streets as downtown accessways; however, many cyclists still end up on the sidewalks.

The crosswalks across Maine Street are still daunting to many pedestrians because they cross four lanes of traffic, and visibility is not good. While some businesses provide makeshift ramps for sidewalk access, most businesses have raised entrances and steps from the public sidewalk that limit access to persons with disabilities.

Wayfinding in the downtown area is also a frequently encountered problem for visitors to the downtown area. People searching for points of interest, historical sights, and monuments often report being unable to find for what they are looking. There is a distinct lack of directional signage in downtown Brunswick.

## **Goals:**

1. Support the efforts of the Brunswick Downtown Association (BDA), the Master Plan Implementation Committee (MPIC), the Village Review Board (VRB), the Maine Department of Transportation (MaineDOT), and the Planning Board to maintain and enhance the pedestrian-friendly village character of the Maine Street and Lower Pleasant Street Area
2. Bicyclist feel safer in the downtown transit area and more convenient bike routes exist through the downtown

3. Safer transit systems support bicycle riders and pedestrians travelling to Topsham (Route 201)
4. It easier for visitors to find points of interest, historical sites, and monuments in the downtown

## Action Items:

### Union Street Bike Safety Project

Union Street has subpar bicycle and pedestrian facilities. Because it is a preferred bicycle route to Maine Street, it is important that it accommodate cyclists.

**ACTION ITEM** – Study Union Street to determine better bicycle and pedestrian access and required improvements to sidewalks, curbs, and striping.

## Outer Pleasant Street

The outer Pleasant Street (Route 1) corridor from Old Portland Road and I-295 (west) to Stanwood and Mill Streets (east) is a major travel corridor inhospitable to pedestrians and bicyclists. Dense businesses and associated driveway entrances (curb cuts) line the north and south sides of outer Pleasant Street. Neighborhood traffic to outer Pleasant Street from the north comes from River Road, Range Road, Mill Street, and Westminster Avenue. Neighborhood traffic to outer Pleasant Street from the south comes from Robinson Avenue, Church Road, Lavallee Street, Webster Street, Lombart Street, Summer Street, and Stanwood Street.

Sidewalks are constructed along most of outer Pleasant Street; however, most sidewalks are narrower than the 5-foot wide ADA standard travel width and contain obstructions to persons with disabilities including parked cars, overgrown vegetation, seasonal snowbanks (from adjacent private landowners), telephone poles, and structures. Most sidewalks along outer Pleasant Street provide curb ramps to crosswalks, but only the road crossing at Stanwood Street provides detectable warning surfaces for the visually impaired. Most sidewalks are frequently interrupted by curb cuts, and no buffer or street tree row separates the sidewalk from the heavily traveled street. There are no delineated bicycle lanes or shared-lane pavement markings on outer Pleasant Street.

It is difficult for bicyclists turning left from Stanwood Street onto Pleasant Street to reach the River Road area to the north of Pleasant Street. The River Road area is only

reachable from Pleasant Street, which causes it to be generally inaccessible to bikers and pedestrians approaching from Stanwood Street.

The outer Pleasant Street area does not have any connections to public transit and is serviced by neither the Metro Breeze or the Brunswick Explorer. People living in the outer Pleasant Street area would have to go downtown to access public transportation, highlighting the importance of pedestrian and bicycle connections to the downtown from Pleasant Street. The poor bike and pedestrian facilities combine with the lack of public transit in outer Pleasant Street to create an area accessible basically only by car.

## Goals:

1. Support the efforts of the Master Plan Implementation Committee (MPIC) and the Planning Board to enhance and improve pedestrian-friendly infrastructure within the outer Pleasant Street area
2. Make all sidewalks and crosswalks accessible to persons with disabilities
3. Connect neighborhoods that are isolated from other areas of town by Pleasant Street
4. Support the efforts of the Department of Parks and Recreation for bicycle and pedestrian access to the Androscoggin Swinging Bridge and Topsham

## Action Items:

### Stanwood to River Road Bike and Pedestrian Connection

A system of connected “paper streets” and rights-of-way behind businesses along Pleasant Street could connect Stanwood Street to Webster Street with a path for bicyclists and pedestrians. The crossing at Webster Street and River Road would complete the connection to the River Road area. Continuing such a path to Church Road would create a safer way for bicyclists to move along the Pleasant Street Corridor from Route 1.

**ACTION ITEM** – Investigate the use of “paper streets” and ROWs to provide an alternative path for bicyclists and pedestrians off Pleasant Street.

### ADA Accessible Sidewalks

Reducing curb cuts and ensuring that private property or winter snow piles do not interrupt the outer Pleasant Street sidewalks would make them safer and more

comfortable for all pedestrians. Widening sidewalks should accommodate for ADA-required width even where sidewalks are interrupted by telephone poles.

**ACTION ITEM** – Investigate feasibility of sidewalk widening and closure of curb cuts along outer Pleasant Street.

## Brunswick Landing and Cooks Corner

Brunswick Landing, the former Brunswick Naval Air Station, is continuously undergoing reuse and redevelopment as parcels of land transition from the Federal Government and Midcoast Regional Redevelopment Authority (MRRRA) to new public and private entities. Unlike most public streets and sidewalks in Brunswick, the travel corridors at Brunswick Landing are primarily owned and maintained by MRRRA. Brunswick Landing hosts new and renovated Navy housing, offices, industrial and manufacturing facilities, schools, restaurants, public conservation land, and recreation areas.

Brunswick Landing and Cooks Corner converge at Bath and Gurnet Roads. Bath Road is a signed bicycle route with primarily wide shoulders from Sills Road to Old Bath Road. However, there are no designated bicycle lanes or sharrows, and traffic travels around 40 miles per hour. The Bath Road is also interrupted by frequent curb cuts, increasing risks for bicyclists.

The Brunswick Landing Perimeter Trail provides an alternative access route for bicyclists and pedestrians to Brunswick Landing. The trail begins at the end of Pine Street and parallels the Bath Road. This bicycle path is designated a safe bicycle route on Brunswick Landing by the BBPAC.

Bicycle and pedestrian access to businesses along the Bath Road is limited by vehicle traffic. Some sidewalk sections have been constructed on portions of commercial lots along Bath Road right-of-way. Unfortunately, most sidewalk sections along Bath Road are fragmented, narrower than the 5-foot wide minimum travel width for ADA



Brunswick Landing Perimeter

compliance, and without curb or detectable warning surfaces within the sidewalk terminus at driveway crossings to aid the visually impaired.

The new connecting Landing Drive between Brunswick Landing and the Gurnet Road provides bike lanes in both directions, sidewalks protected by street trees, and detectable warning surfaces where sidewalks meet driveway crossings. Landing Drive's bike and pedestrian facilities connect to the Brunswick Landing Perimeter Trail; however, no bike and pedestrian infrastructure exists on the Gurnet Road, fragmenting the transit system.

Public transit in the form of the Brunswick Explorer services the Cooks Corner area including stops at the malls, Walmart, Sweetser, and Mid Coast Hospital. There is no public transit service to Brunswick Landing. Due to the inaccessibility of Cooks Corner to pedestrians and bicyclists, bus service in the area is unable to be part of connected systems of multi-modal transit beyond its stops.

## Goals:

1. Support the Public Works Department, Midcoast Regional Redevelopment Authority (MRRA), and the Planning Board for bicycle and pedestrian access on Bath Road, Admiral Fitch Avenue, Gurnet Road, and the new Cooks Corner connector road
2. Safely and comfortably accommodate pedestrians and bicyclists into Brunswick Landing and Cooks Corner multi-modal transit networks
3. Improve access to Brunswick Landing and Cooks Corner for bicyclists and pedestrians from surrounding areas
4. Encourage common development of Brunswick Landing businesses for safe bicycle and pedestrian transit networks between businesses and public land

## Action Items:

### **Cooks Corner Bicycle and Pedestrian Accessibility**

Landing Drive sets a standard for bike and pedestrian infrastructure, and the new infrastructure will hopefully encourage people to bike to Brunswick Landing. The rest of Cooks Corner lacks adequate bike and pedestrian facilities, and a network of infrastructure is needed to complete and support the bike and pedestrian systems present on Landing Drive and Brunswick Landing. Building bike and pedestrian facilities in Cooks Corner will allow previously unconnected neighborhoods to have access to stores and restaurants. Building pedestrian and bike infrastructure will also improve the comfortability and attractiveness of the Cook Corner area.

**ACTION ITEM** – Identify opportunities to build and prioritize all types of bike and pedestrian facilities in the Cooks Corner area to connect currently inaccessible areas.

**ACTION ITEM** - Educate developers on the Cooks Corner Design Standards to encourage transit-oriented boulevards for improved bicycle and pedestrian access on Bath Road for new and redevelopment projects.

**ACTION ITEM** - Evaluate the potential for off-street or sheltered bicycle and pedestrian access from Harpswell Road & Sills Drive to Pine Street, Allagash Drive, Katahdin Drive, and Admiral Fitch Avenue.

**ACTION ITEM** - Evaluate the potential for bicycle and pedestrian access from Pine Street and Allagash Drive to Jordan Avenue.

**ACTION ITEM** – Add shoulders for greater bicyclist protection to the Old Bath Road

**ACTION ITEM** – Evaluate feasibility of public access through the currently locked Purrinton Road gate.

### **Public Access to Off-Road Fitness Trails on Brunswick Landing**

Included in the land transfer from BNAS to Midcoast Regional Redevelopment Authority was a fitness trail formerly used for Navy training. The trail offers excellent opportunities for mountain biking; however, the fitness stations along the trail are not in good condition. Development of the trail and improved transit connections could make it a valuable resource to the community.

**Action Item** - Support redevelopment of off-road fitness trail systems and new connections for public use.

# Schools & Surrounding Areas

Public and private schools for grades K-12 draw multi-modal traffic from children, parents, teenage students, and staff. The planning goals and implementation strategies for bicycle and pedestrian access from neighborhoods to schools varies by school location and student age group. The K-12 schools in Brunswick are:

1. Coffin Elementary School-**Closing 2020** (Barrows Street)
2. Harriet Beecher Stowe Elementary School (McKeen Street)
3. Kate Furbish Elementary School-**Opening 2020** (Jordan Avenue)
4. The REAL School for grades 5-12 (Seahawk Avenue)
5. Harpswell Coastal Academy grades 6-12 (Leavitt Drive)
6. Brunswick High School (Maquoit Road)
7. Brunswick High School's Off-Campus Learning Center - Union School (Federal Street)
8. Brunswick Junior High School (Columbia Avenue)
9. Region 10 Technical High School (Church Road)
10. St. John's Catholic School for grades P-8 (Pleasant Street)

Five of these schools, Brunswick Junior High, Coffin, Harriet Beecher Stowe, Kate Furbish, and St. John's, are located in dense, residential neighborhoods closer to Downtown Brunswick, attracting more pedestrian and bicycle traffic. However, it is important that pedestrian and bike access be considered for all schools in order to improve student safety and encourage environmentally friendly, health transit choices in youths.

## Harriet Beecher Stowe

Harriet Beecher Stowe Elementary School (HBS) is sandwiched between McKeen, Stanwood, and Spring Streets, all of which receive substantial car traffic. Two busy intersections are created where Spring and Stanwood Streets meet McKeen Street. Some crosswalks create safe paths to school; however, neighborhoods to the west of Stanwood lack the infrastructure to allow children to safely reach HBS. Stanwood has a sidewalk on only its east side and there are no crosswalks to allow children to safely reach the school from the west side of the street. The north end of Baribeau Drive meets neighborhoods which are cut off from easy paths to HBS by a problematic crossing at Baribeau and McKeen. The crosswalk starts from a corner with no pedestrian protection and requires pedestrians to cross Baribeau on the southern side of McKeen as well.

## Brunswick Junior High School & Coffin Elementary School

Brunswick Junior High and the soon-to-close Coffin Elementary School are located in the same lot flanked by Columbia Avenue, Barrows Street, and Baribeau Drive. While the streets immediately around both schools are only 25 miles per hour, not all have sidewalks. Columbia Avenue, Spring Street, Richards Drive, Shulman Drive, and Baribeau Drive north of Columbia all have sidewalks. The neighborhoods west of Stanwood Street and north of McKean Street face the same challenges reaching BJHS and Coffin as reaching HBS.

Some subdivisions to the west of BJHS would benefit from improved pedestrian and bike connections in the form of shared use paths. The Willow Grove Road subdivision backs up to Columbia Avenue; however, no path between the two exists, causing the distance between the neighborhood and the school to be much longer. The Arrowhead Drive development could also be within bikeable distance to BJHS if a ROW where to connect the east end of the development to Columbia Avenue.

### **Kate Furbish Elementary School**

The new Kate Furbish Elementary School will be built off Jordan Avenue tucked in an area with many meandering side streets. Jordan Avenue creates a main thoroughfare from the surrounding neighborhoods and Federal Street. Jordan Avenue has a sidewalk on its north side that runs from Federal Street to Lori Drive and a partial sidewalk on its south side from Federal Street to Stetson Street. Although crosswalks connect to the side streets on the south side of Jordan Avenue, most side streets around Jordan Avenue lack sidewalks. Jordan Avenue's northern sidewalk is narrower than ADA requirements and towards Federal Street is interrupted by telephone poles. The south sidewalk narrows to be almost unusable for even one pedestrian towards Federal Street. Due to the number of side streets south of Jordan Avenue, it would be beneficial for student safety to have a sidewalk on both sides of the street.

### **The REAL School & Harpswell Coastal Academy**

Both Harpswell Coastal Academy and the REAL School are located on Brunswick Landing. While Brunswick Landing is further away from many neighborhoods, the Brunswick Landing Perimeter Trail provides bike and pedestrian access to the area, and many streets have sidewalks. However, the road on which the REAL School is located does not have sidewalks. The road to Harpswell Coastal Academy has sidewalks.

### **Brunswick High School**

The driveway for Brunswick High School is accessed from Maquoit Road and provides ample protection for cyclists and pedestrians in the form of a shared use path protected from the drive by a median of street trees. Maquoit Road itself has a sidewalk on its

eastern side north of BHS. The rest of Maquoit features decent sand shoulders; however, the road is unstripped. Upper Maine Street features wide, stripped shoulders, and a sidewalk on the eastern side that connects to Maquoit via a crosswalk.

Despite this infrastructure, the remote nature of BHS and the high traffic levels at start and end times are not conducive to biking and pedestrian transit. Additionally, Maquoit Road lacks sidewalks or wide, striped shoulders south of BHS, discouraging access to BHS from neighborhoods to the south.

### **Region 10 Technical High School**

Region 10 is located off the Church Road which has no sidewalks, and the driveway for the school also has no sidewalks. Church Road does have wide, striped shoulders that are beneficial for bicyclists; however, the school is cut off from easy access to neighborhoods within bicycling distance on River Road or Range Road by upper Pleasant Street. Brian Drive, Hennessy Avenue, Country Lane, and Bouchard Drive could be within walking or biking distance to Region 10 if connected by ROWs.

### **St. John's Catholic School & Brunswick High School Off-Campus Learning Center**

Both schools are located in downtown Brunswick off Union Street. Since both schools are located downtown and off Maine Street, the pedestrian infrastructure near the schools is strong. However, Union Street presents challenges for pedestrians near the Town Hall. A temporary pedestrian safety installation has tried to address the lack of pedestrian protection in the section.

## **Safe Routes to School**

As stated on the MaineDOT website, "Safe Routes to School is a federal, state, and local effort to enable and encourage children, including those with disabilities, to walk and bicycle to school, and to make walking and bicycling to school safe and more appealing. A major goal of the program is to increase bicycle, pedestrian, and traffic safety. In partnership with the Maine Department of Transportation, the Bicycle Coalition of Maine provides staff support and resources to schools and communities to increase the number of students walking and bicycling to school." Safe Routes to School in Brunswick also collaborates with BBPAC to identify and strengthen walking and biking routes to local school. Safe Routes to School in Brunswick is largely supported by local citizens and school staff to identify safe routes, organize bike/walk to school days, and educate children on safe bicycle and pedestrian behavior.

## Goals:

1. Improve the safety and security of routes to school for biking and pedestrian children
2. Increase the use of bike and pedestrian modes of transit to school
3. Improve and create connections between schools and currently unconnected neighborhoods
- 4.

## Action Items:

### **Pedestrian Infrastructure around Harriet Beecher Stowe Elementary School**

Improving pedestrian connections to the neighborhoods west of Stanwood Street will increase the safety of children who already travel to school by such routes and encourage more families to choose alternative modes of transit to school. Developing safe bike and pedestrian paths to school could also have an impact on childhood health by encouraging students and parents to be active on their commute to school. Of major importance to improving access to HBS are building a sidewalk on the west side of Stanwood, striping crosswalks across Stanwood, and improving the safety of the Baribeau and McKeen crossing and intersection.

**ACTION ITEM-** Prioritize and build pedestrian and bike infrastructure to connect the neighborhoods west of Stanwood Street to Harriet Beecher Stowe Elementary School.

### **Paper Street Connections Between Schools and Neighborhoods**

Many neighborhoods that could be within biking or walking distance to nearby schools are closed off from access due to the layout of Brunswick Streets. Paper streets and ROWs could be utilized to build multi-use paths to connect currently inaccessible neighborhoods with local schools. This would allow more children to reach school by bicycle or foot, reducing morning car traffic and increasing children's activity levels.

**ACTION ITEM –** Investigate the use of paper streets and ROWs to create connections between isolated neighborhoods and schools across Brunswick.

### **Jordan Avenue Bike Safety Zone**

Jordan Avenue is quite narrow at parts and does not have any bicycle facilities. Consideration should be taken on how best to accommodate the new pedestrian and

bike usage that will arise from the opening of the Kate Furbish Elementary School. Striping wider shoulders or painting sharrows could increase bicycle safety and comfort on the road.

**ACTION ITEM** – Restripe or paint sharrows to accommodate cyclists

## Safe Routes to School Zoning Map

Safe Routes to School has identified paths to various Brunswick schools that provide the most safety for students. A zoning map for each school published on the Town website for public view would provide better knowledge of the safest ways to reach school and could encourage families to walk or bike to school more often.

**ACTION ITEM** – Develop Safe Routes to School Zoning Map

## Rural Roads

The quieter country roads in rural parts of town provide enjoyable scenery and plentiful routes for bicycle riders and pedestrians from Brunswick and surrounding towns. Most of the designated scenic areas featured in Brunswick’s adopted *Parks, Recreation, and Open Space Plan* are on rural streets and bike paths in southern parts of Brunswick.



The 2019 Trek Across Maine on Pennell Way.

Brunswick’s rural roads feature open meadows, pasture land for cattle, forests, coastal estuaries, and bays, all spread through low density neighborhoods. Many of these scenic places in Brunswick are listed on the NRHP, including Crystal Spring Farm, the Pennellville Historic District, Middle Bay Cove, and Pennell Way. Though most rural roads do not have designated bicycle lanes, sharrows, or alternative off-street access ways, they are frequently used by bicycle riders for sport and regional travel.

The East Coast Greenway makes use of Brunswick's rural roads and gives cyclists the option to travel on inland or coastal routes. The ECG is marked by small signs along the route, but wayfinding on Brunswick's rural roads is lacking. For example, no signage points to the popular swimming spot at Simpson's Point.

Despite the number of bicyclists and pedestrians, anecdotal evidence from residents indicates automobile traffic tends to move faster than the posted speed limit on Brunswick's low volume rural roads. The Mere Point Road, a particularly popular route, challenges cyclists with poor asphalt conditions and occasional narrowness which often force cyclists further into the roadway. The Pleasant Hill Road is also inhospitable to cyclists and runners despite its use by both groups. Cars travel quickly along the straight road into town, and stripped shoulders are often narrow with little protection from cars.

Maps of frequently traveled bicycle rides with scenic views of Brunswick are provided in **Appendix III**.

### **Goals:**

1. Reduce speeding on rural roads
2. Improve on-street bicycle routes for access to regional travel and points of interest
3. Increase use of preferred routes for recreational bicycling and pedestrian activities

### **Action Items:**

#### **Public Guide to Preferred Routes**

Brunswick's rural roads provide connections to regional areas of interest as well as recreational opportunities. It would be helpful for the public if the Town provided an easily accessible guide to preferred bike or running routes that also highlighted connections to regional points of interest. This would allow and encourage new residents, visitors, or individuals taking up an activity for the first time to easily find good places to recreate.

**ACTION ITEM** - Prepare or advise on advertising materials for bicycle riding routes in Brunswick with regional connections to areas of interest.

**ACTION ITEM** - Prepare and publish an inventory of preferred on-street bicycle routes for public use on the Town of Brunswick GIS maps.

## Rural Wayfinding

In order for citizens to best take advantage of preferred bicycle routes on rural roads, signage must be clear and easy to follow. Brunswick lacks any significant wayfinding system, and navigation on rural roads requires familiarity with the area or the use of a mapping system. Better wayfinding resources could encourage greater use of Brunswick's rural roads for recreation and would support the publishing of guides to preferred routes.

**ACTION ITEM** - Identify and evaluate preferred bicycle riding routes and advise the appropriate review entity if modifications to existing signs or additional wayfinding signage is recommended.

## Trails

Through conservation easements and public land holdings, the Town of Brunswick has a variety of bicycle and pedestrian access ways on paved and unpaved trails for citizens and visitors to enjoy. Trail systems offer intrinsic safety from cars. Many trails are within isolated parcels of land, but others connect to points of interest off-site via public and private streets. Some of the most popular off-road trails on unpaved surfaces are depicted on the online public GIS map through the Department of Planning and Development's webpage. Other sources of public trail maps are available in the Parks, Recreation, and Open Space Plan, and on the Brunswick Topsham Land Trust (BTLT) webpage.

### Goals:

1. Expand Brunswick's trail system to improve or maintain trails and connections, conserve land, and provide more public green space where appropriate

# Watersheds in Transportation Corridors

It is important that relevant bicycle and pedestrian improvement projects take advantage of opportunities to incorporate environmentally friendly design including the installation of green infrastructure to reduce impacts to nearshore coastal resources and inland wetlands and waterbodies. According to Maine Department of Environmental Protection (DEP) Rule 502, Brunswick has four (4) urban impaired stream watersheds that are compromised in-part by impervious areas and road crossings. At the time of this plan update, the Town of Brunswick received conditional award from the Maine DEP for funds to prepare a watershed management plan for the Mare Brook urban impaired stream watershed.

## Goals:

1. Reduce impervious areas in established travel corridors
2. Improve watershed health while increasing bicycle and pedestrian safety and access

## Action Items:

### Complete Streets Policy Amendment

The Complete Streets Policy adopted by the Town Council as an appendix to the Zoning Ordinance outlines a cooperative agreement between BBPAC, the Town Engineer, the Department of Planning and Development, and the Town Manager that insures any future infrastructure development and rehabilitation considers the needs of all potential users, including bicyclists and pedestrians. Traffic calming measures including vegetation and other green infrastructure can treat non-point source pollution and reduce peak flow runoff. These green infrastructures to be considered include street trees, filter basins, vegetated filter strips, curbing and level spreaders (to reduce runoff channelization), and bioswales.

**ACTION ITEM** - Amend the Complete Streets Policy to consider green infrastructure in the required alternatives analysis.

# Town Wide Planning Areas

## Temporary Demonstration Projects in Travel Corridors: Popup Planning

In 2018-19, the BBPAC and Department of Planning and Development collaborated with the Bicycle and Pedestrian Coalition of Maine (BPCM) and other Department staff to develop and install popup demonstration projects (see **Appendix IV** for extended descriptions and analysis of completed popup projects). Popup demonstration projects are implemented across the country to test traffic calming, bicycle and pedestrian egress, parking alternatives, and public recreation and park areas. These projects are designed to test public infrastructure at a low cost prior to recommending capital improvements for permanent infrastructure which have a much higher cost. As with all public services, the cost of the service should be equal to or less than the cost of the negative externality it is intended to mitigate. In bicycle and pedestrian improvement popup projects, negative externalities may include high speed traffic, reduced access for bicycle riders and pedestrians, unsuitable infrastructure for multi-modal use, and unsafe or otherwise undesirable conditions for the use and enjoyment of the public right-of-way for users.

### Goals:

1. Use pop-up projects to improve bicycle and pedestrian safety in Brunswick and test potential infrastructure improvements
2. Better measure and evaluate the bicycle and pedestrian needs of Brunswick beyond the advising provided by BBPAC

### Action Items:

#### Popup Demonstration Projects to Inform Sustainable Infrastructure

Popup planning projects are useful for determining the feasibility of permanent infrastructure development; however, the process of popup planning could be improved and made more effective.

**ACTION ITEM** – Coordinate with staff and stakeholders to develop, implement, and evaluate popup demonstration projects to inform permanent infrastructure retrofits.

**ACTION ITEM** - Develop an instrument to evaluate the effectiveness of popup demonstration projects including a schedule for adjustments and removal.

**ACTION ITEM** - Engage the Brunswick Public Works and Engineering Departments, MaineDOT, Bicycle and Pedestrian Coalition of Maine (BPCM), the Merrymeeting Wheelers, Safe Routes to School (SRTS), and other interested stakeholders where applicable to review popup demonstration projects prior to installation.

**ACTION ITEM** - Advise the Town Council and other Brunswick Boards, Commissions, and Committees about anticipated popup demonstration projects prior to installation.

**ACTION ITEM** - Advise the appropriate entity on the results of the popup demonstration project and provide recommendations on capital improvements.

## **Town Transportation Planner**

Brunswick has ample opportunities to improve its multimodal transportation networks across town and the number of potential bike and pedestrian improvement projects is extensive. Identifying and prioritizing bike and pedestrian projects across town falls on the Brunswick Bike and Pedestrian Advisory Committee and the Planning Department; however, a transportation planner would be able to better analyze the needs of the town as a whole. A transportation planner would better be able to identify and carry out bike and pedestrian improvements.

**ACTION ITEM** – Consider the feasibility of hiring of a transportation planner.

# Driver, Bicyclist, and Pedestrian Education & Compliance

The Safe Routes to School program organizes bicycle and pedestrian safety lessons in physical education classes at Harriet Beecher Stow. Educating children on proper use of crosswalks and bicycling etiquette is important, and many people have misconceptions about rules regarding bicycling and pedestrian activity. When people do not understand the rules of pedestrian and bike conduct, issues of safety arise. Police enforcement is also important to ensure that laws surrounding pedestrians and bicycles are being followed, and issues of compliance with such laws is the sole responsibility of the Police Department. Planning decisions like incorporating green infrastructure instead of hardscape may not be understood by the majority of the public, and increasing awareness of the reasoning and benefits behind such decisions could increase public support for such projects.

## Goals:

1. Drivers travel within the speed limit and respect the space of cyclists and pedestrians
2. Bicyclists use proper hand signals when maneuvering on the road to communicate with drivers
3. Pedestrians are aware of their surroundings and stop, look, and wave before crossing streets
4. Sidewalk users are respectful and courteous of other users
5. Increased public knowledge of the health benefits of bicycling and pedestrian transit
6. The public understands the reasoning and benefits behind green infrastructure

## Action Items:

### **Bicycle and Pedestrian Educational Programs and Materials**

Educating all users of the road on proper conduct will improve safety for all groups. Pedestrians who are careful when using crosswalks benefit their own safety and reduce risks for accidents. Bicyclists who use hand signals and navigate sidewalks without disrupting pedestrians increase safety for everyone. Drivers who follow speed limits, 3-foot distance from cyclists laws, and yield to pedestrians in crosswalks reduce risks for accidents.

**ACTION ITEM** – Develop educational materials for the public tailored to specific users and transit areas and town-wide planning issues

**ACTION ITEM** - Identify and collaborate with relevant groups to reach the public with educational materials

## **Coordination with Brunswick Police Department**

Currently BBPAC does not actively coordinate with the Police Department, and enforcement of bike and pedestrian laws is the responsibility of the Police Department. Coordination with the Police Department could be a beneficial exercise to increase bicycle and pedestrian safety and understand issues from the perspective of law enforcement.

**ACTION ITEM**- Coordinate with the Brunswick Police Department to explore ways to improve conditions for bicyclists and pedestrians

## **Promote RUN@Work and RUN@School Day**

RUN@Work and RUN@School are national events lead by the Road Runners Club of America (RRCA) to encourage individuals to get 30 minutes or more of exercise per day. The events encourage workplaces and school to make time for employees or students to run or walk. The event is focused on improving public health and promoting healthy lifestyles. The event occurs every September; however, a project to promote the event could boost participation. Promotion would include public notice, TV3, and publicity on the website.

**ACTION ITEM**- Create a proposal to promote RUN@Work and RUN@School Day in coordination with RRCA.

## **Promote Bike to Work Week**

Greater participation in Bike to Work Week could introduce more individuals to cycling as a mode of valuable transportation. Increased publicity of the event would also promote public awareness and acceptance of cyclists as users of the road. Increasing the number of individuals who bike to work would benefit health and the environment. Promotion would include public notice, TV3, and publicity on the website.

**ACTION ITEM**- Create a proposal to promote Bike to Work Week in coordination with Merrymeeting Wheelers, Brunswick Downtown Association, and Access Health.

## Calendar of Bicycle and Pedestrian Events in Brunswick

There is currently no place to find information on bicycle and pedestrian related events occurring in Brunswick, and a calendar published on the Town website or hosted by another stakeholder could increase awareness of events and encourage more bicycle and pedestrian activity. The primary benefit of such a calendar would be improvements in public health by encouraging people to get exercise and be active. A calendar of events could spark interest in pedestrian and bicycling activities and draw more community members into healthy activities.

**ACTION ITEM-** Publish a bicycle and pedestrian activities calendar on the BBPAC page.



## 02: Usage & Sources of Funding

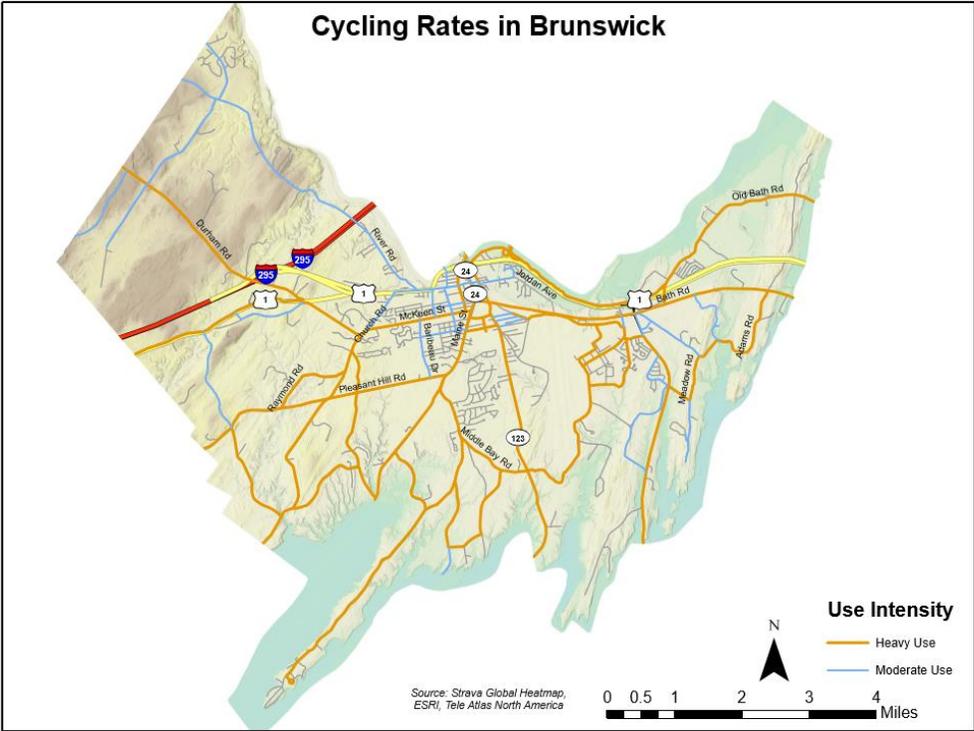


# Usage

The roads and trails of Brunswick are popular places for bikers and pedestrians. On any sunny summer day, the rural roads around town are filled with serious road bikers, more leisurely recreational bikers, runners, and pedestrians. Map studies of road and trail usage using Strava data around Brunswick reveal extensive areas of heavy use. While this data is limited to sport cyclists and runners who are tracking their activity with Strava, it can be used to identify roads where improvements would be most useful.

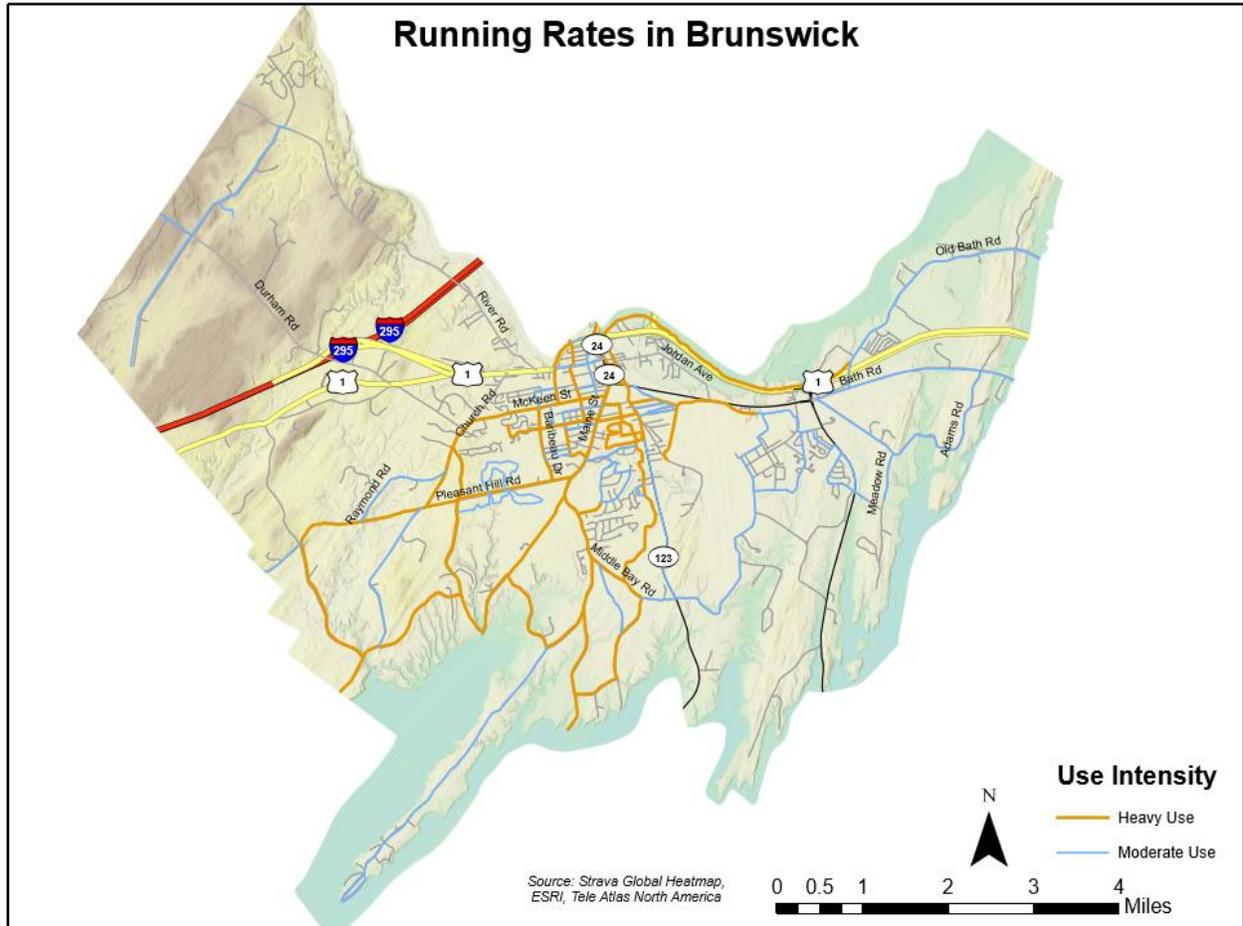
## Cycling Usage

Usage maps reveal that almost all the major roads in Brunswick are used for biking; however, the roads south of downtown are particularly popular with cyclists.



## Running Usage

Brunswick is also popular with runners, but running usage is more concentrated on roads closer to downtown. Runners also use the roads south of Downtown extensively while giving less attention to roads in other areas of Town



# Sources of Funding for Bicycle and Pedestrian Improvement Projects

This section outlines potential sources of funding outside of Town funding for planned bicycle and pedestrian improvement projects.

## **Community Development Block Grant Program- Maine Department of Housing and Urban Development**

Under the Downtown Revitalization Grant Program, CDBG grants provide funding for projects that “must be part of a strategy that targets downtown service and business districts and will lead to future public and private investment.”

**Eligibility:** Towns must have a comprehensive downtown revitalization plan no more than five years old, or must demonstrate that older plans are under active implementation. Brunswick’s Master Plan for Downtown Brunswick & the Outer Pleasant Street Corridor which does include provisions related to pedestrian accessibility is from 2011. According to the DECD, applicants “must demonstrate that the project meets the National Objective of 1) benefiting 51% or greater low/moderate income persons or 2) preventing or eliminating slum or blighting conditions.”

**Funding Level:** Downtown Revitalization Grants provide up to \$300,000 in funding with at least a 25% funding match from private sector investment directly related to the project.

## **Tax Increment Financing**

The Town of Brunswick can use municipal TIF to fund eligible projects by designating a TIF district from which additional property tax will fund a project in the community. The designation of a TIF district follow the requisite process of approval before being implemented.

## **Community Forest Program, US Forest Service**

The Community Forest Program, run by the US Forest Service, provides funds for the acquiring of the titles to identified private forest lands in municipalities so that the land can be maintained as a publicly accessed resource.

**Eligibility:** Land must be at least 5 acres and 75% forested to be eligible.

**Funding Level:** The US Forest Service will fund 50% of the project with a 50% match from non-federal funding.

### Land for Maine's Future

Land for Maine's Future provides funds for the acquisition of undeveloped land or farmland open space. LMF aims to protect land across the state and all parcels are open to the public besides areas reserved for specific waterfront activity or wildlife protection.

**Eligibility:** The Town must have a willing seller of land to be acquired with a clear title at the market appraised value. The land could be undeveloped parcels, waterfront access or working waterfront or productive farmland. LMF funds are also available for parcels purchased within two years.

**Funding:** LMF provides 50% matched funding for any project. If recreational facilities are desired on a property, LMF may provide up to 5% of the appraised value for such infrastructure.

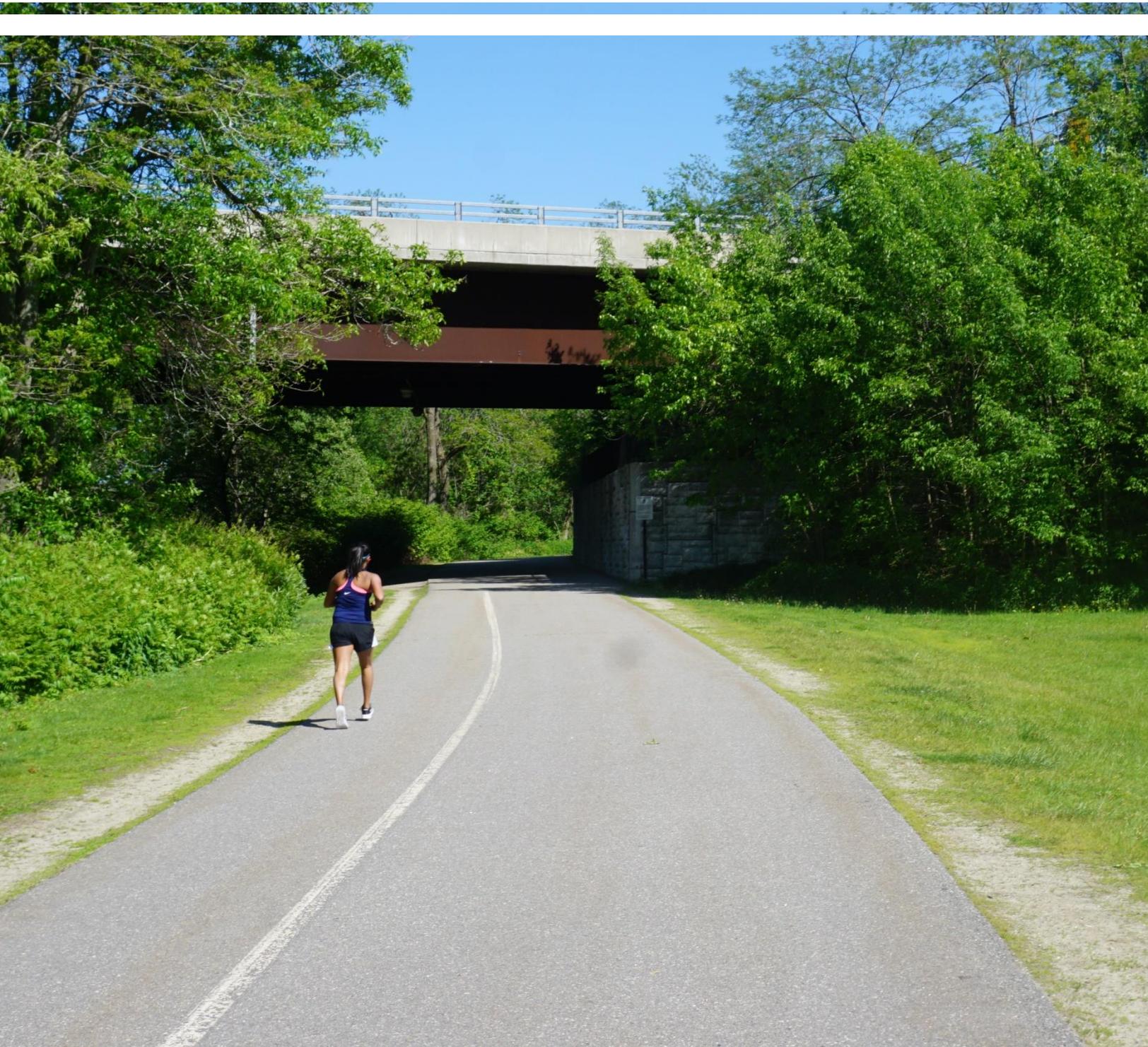
### MaineDOT Bicycle and Pedestrian Program

MaineDOT's Bicycle and Pedestrian Program provides funding for local projects that improve bicycle and pedestrian infrastructure. The program "assists with funding sidewalks, pedestrian crossing improvements, off-road transportation-related trails, downtown transportation improvements, projects that address safety and/or ADA compliance concerns, etc." The goal of MaineDOT's program "is to improve transportation and safety, encourage healthful activities, and promote economic development, while improving the livability and vitality of local communities." Each year, \$2.3 million is allocated to projects across Maine.

**Eligibility:** Projects must match the objects of the program, and matching funding must be secured before the application is submitted.

**Funding:** MaineDOT will fund up to \$400,000 on projects. Non-federal local funds must pay for at least 20% of the project.

# Appendix 1: Benefits of Improved Bicycle and Pedestrian Infrastructure



# Part 1: Economic Benefits

## Increased Tourism

Bike tourism is popular in the United States and multiple state and national studies have shown that bike tourism increases local spending, benefiting areas with strong infrastructure for bike tourism. The Bureau of Economic Analysis calculated that biking alone accounted \$96 billion in retail sales in 2018 across the country. A study by the State of Vermont found that in 2009, biking and walking added 1,400 jobs, \$41 million in personal income, and \$83 million in revenue. Bike tourism draws in out-of-state visitors looking to spend money on food, lodging, and retail in local economies. A study using data from Maine in 1999 estimated the total economic impact of bike tourism to be \$66.8 million with a substantial multiplier effect from local spending. Many other studies show that bike infrastructure such as shared-use paths increases local tourism and benefits economies.

## Increased Local Spending

Bike and pedestrian friendly towns benefit from redirecting auto spending towards the local economy. Cars are expensive, and many economists believe that designing around the automobile is bankrupting the US because working-class Americans are spending as much on transit as housing. A substantial percentage of automotive spending goes

to multinational car and gas companies, removing this money from local economies. In bike and pedestrian friendly Portland, Oregon, individuals save 3% of their income on transportation. This spending can be redirected towards local shops and housing. Money spent at local vendors stays in the local economy, creating a large multiplier effect in auto spending.

## Attractive to College Grads

Cities and towns that are designed for bikers and pedestrians are more attractive to college graduates and highly educated individuals who will strengthen workforces. Portland, Oregon saw a 50% increase in their population of recent college graduates between the 2000 and 2010 censuses. College graduates are attracted by healthy lifestyles and the activity and interaction present in bicycle and pedestrian friendly communities. College graduates increase human capital and talent in a city, leading to greater innovation, knowledge spillovers, thicker labor markets, and economic growth. College graduates are important for supporting the workforce in states with aging populations. Maine, having the oldest median age in the country, is particularly in need of recent college graduates.



## **Improved Conditions for Businesses**

Areas designed for bikers and pedestrians attract businesses with increased customer traffic in stores. Downtowns that are designed for cars discourage pedestrians from migrating from shop to shop or spending time downtown. Lancaster, California redesigned its downtown boulevard in 2008 to be more accessible and comfortable for pedestrians. The change encouraged the opening of 49 new businesses and doubled the downtown revenue.

## **Increased Housing Values**

Improving bicycle and pedestrian infrastructure increases housing values and the desirability of neighborhoods. Increasingly, pedestrian infrastructure is a top criterion for homebuyers who want alternative modes of travel to schools, stores, entertainment, and public transportation. Areas with strong pedestrian infrastructure are attractive

because they foster a greater sense of community. This effect is evident in the rapid growth around the High Line in New York City. Investment in housing also encourages spending on construction, which has a strong local multiplier effect.

## **Public Cost Savings**

Encouraging biking and pedestrian travel lowers the costs of road maintenance due to wear and tear, and sidewalks and bike lanes are comparatively inexpensive to build and maintain. Reducing car traffic produces public savings in the form of less time spent in traffic and less money spent on maintenance.

## **Reduced Economic Exclusion**

Improving bicycle and pedestrian infrastructure mitigates the geographic exclusion of people unable to afford a car to reach jobs, shops or community centers. Self-powered travel is a cheap alternative to owning a car, and bike and pedestrian

infrastructure allows individuals who cannot afford a car, particularly in places with weak public transit, a way to travel. Importantly, Brunswick's affordable housing is generally located far from the center of town, often in areas difficult to access without a vehicle.



Lancaster, California's downtown boulevard. *StreetsBlog LA*.

## Definitions

**Multiplier effect:** The multiplier effect occurs when an increase in one economic activity causes an increase in many other economic activities. An increase in spending in the economy will cause a greater increase in final income than the initial increase in spending, and the size of the multiplier effect varies depending on the nature of the initial spending. The multiplier effect is essentially the economic snowballing of an initial increase in spending.

**Human capital:** Human capital is the intangible value of a worker that is determined by education, talent, experience, skills, health, training etc. The concept of human capital recognizes that some labor is better than other labor, and high human capital is valuable because it increases productivity.

**Thick labor markets:** The term “thick labor markets” refers to conditions where there are ample numbers of qualified workers and viable jobs. Thick labor markets are desirable to both firms and workers and reduce risk by increasing match options and opportunities for both parties.

**Knowledge spillovers:** Knowledge spillovers are the sharing of information and ideas between individuals. Spillovers occur when workers and firms are in close proximity and are able to discuss and communicate nonrival information. Knowledge spillovers increase innovation and growth.

## References

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Jacobs, Karrie. “The High Line Network Tackles Gentrification.” *Architect Magazine*, Oct. 16, 2017.

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Speck, Jeff. “The Walkable City.” TED Talk, September, 2013.

# Part 2: Environmental Benefits

## Reduced Carbon Output

Building stronger bike and pedestrian networks encourages people to substitute car trips with a more environmentally friendly option. Unlike gas-burning cars, bikers and pedestrians do not produce any carbon output. Studies show that CO<sub>2</sub> output per household is highest in the countryside while cities with dense growth demonstrate the lowest CO<sub>2</sub> output per household. Downtowns that are accessible to pedestrians and bicyclists encourage denser growth (i.e. more dwelling units and commercial uses per acre). Denser growth areas with safe bicycle and pedestrian access reduce the necessity of driving cars.

## Cleaner Air and Water

Driving cars contributes to air and water pollution which directly affects human health and dirties the environment. When it rains, exhaust, particulate dust,

and car oil on road surfaces flow untreated into the public storm drain system and the Androscoggin River, inland streams, wetlands, and nearshore tidal waters. Reducing car trips by encouraging walking and biking can help reduce pollution in urban areas and makes for a cleaner environment. Additionally, incorporating plants and other green infrastructure to treat stormwater runoff in traffic calming or bicycle and pedestrian safety projects can yield important co-benefits for people and the environment.

## Happier People

Studies show that higher Mercer Quality of Living rankings correlate with strong bicycle and pedestrian infrastructure and low carbon output. These attributes of environmentally friendly towns lead to happier people. Increasing biking and walking infrastructure not only benefits the environment's happiness, but that of humans as well.



## Definitions

**Mercer Quality of Living:** The Mercer Quality of Living report ranks cities Internationally in terms of best quality of life. The ranking is based on recreation, housing, the economy, healthcare, public services, weather, education etc.

## References

Charron David. "Walkable Neighborhoods Provide Health, Environmental and Financial Benefits." *The Washington Post*, October 9, 2017.

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Speck, Jeff. "The Walkable City." TED Talk, September, 2013.



# Part 3: Health Benefits



## Fighting Obesity

Chronic illnesses, many of which are caused by obesity, are responsible for 85% of all healthcare costs, and two-thirds of the US population qualifies as overweight or obese. Recent studies have shown that obesity is more closely tied to inactivity than diet. Therefore, it is important to encourage physical activity through robust bike and pedestrian infrastructure in towns and cities. When neighborhoods do not accommodate bikers and pedestrians, environmentally-induced inactivity results. Improving pedestrian and bicycle infrastructure can help combat inactivity, obesity, and the high costs of healthcare in the US.

## Improved Childhood Health

One-third of American children born in 2000 will have diabetes, and this generation is the first expected to live shorter lives than their parents due to obesity and related diseases. Establishing safe biking and pedestrian routes to school increases activity and improves childhood health.

## Combating Asthma

Asthma has also increased in the US and affects 25 million people. Asthma is a

significant economic burden on the healthcare system. The asthma epidemic is linked in part to air pollution caused by cars. Improving pedestrian and bicycle infrastructure can reduce traffic levels and mitigate exhaust and air pollution.

## Fewer Crashes

Protected sidewalks and traffic calming designs have been shown to reduce the rate of car-pedestrian collisions and fatalities. In New York City, where streets are designed to accommodate pedestrians, the rate of pedestrian-car fatalities is 3/100,000 people. In contrast, Orlando, which is primarily designed for cars, has a pedestrian fatality rate five times higher than that of New York. Additionally, traffic calming designs and narrower roads encourage drivers to slow down and take more care, reducing risks for car accidents as well.

## Improved Social Health

Bike and pedestrian resources build a sense of community and increase social interactions which are good for mental health. Instead of passing each other in cars, friends and acquaintances have increased chances of running into each other in person.

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Speck, Jeff. "The Walkable City." TED Talk, September, 2013.



**See it on your ride:** Views on the Rossmore Road.

# Appendix II: Bicycle and Pedestrian Infrastructure Design



# Bicycle and Pedestrian Infrastructure Design for Brunswick

This appendix presents bicycle and pedestrian infrastructure and designs that are relevant to the problems faced in Brunswick and should serve as a reference for common design elements discussed in this plan.

These design elements can be used in future transit projects in Brunswick to address the needs of pedestrians and bicyclists in town. Design elements that accommodate bicyclists and pedestrians give people greater transit choices when they chose how to reach a destination. These design elements aim to improve the experience of bicyclists and pedestrians while considering all users of the road.

The first section of this appendix presents common infrastructure and designs for pedestrians and bicyclists which are currently used in Brunswick or can be used in future projects.

## Common Pedestrian Design Elements

### Crosswalks

Crosswalks signal to cars that they must stop for crossing pedestrians and encourage pedestrians to cross at a certain place. Crosswalks can either be marked with paint or contrasting materials or raised. Brunswick has marked crosswalks throughout town, diagonal, raised crosswalks on Maine Street, and contrasting granite, raised crosswalks on College Street. The variety of crosswalks treatments can address different pedestrian needs and volumes.



A contrasting paver crosswalk at Brunswick



A raised and angled crosswalk on Maine Street



Many of the crosswalks on Maine Street cross four lanes of traffic without a refuge island or curb extensions, conditions that can be daunting to pedestrians.

Crosswalks on College Street are raised with granite ramps and crossings. The granite ramps serve as gentle rumble strips to slow down cars. Granite posts draw further attention to the crossings.



## Detectable Surfaces

Raised detectable surfaces allow visually impaired pedestrians to detect where a sidewalk meets a crosswalk and roadway. Detectable surfaces are an important element of ADA sidewalk compliance; however, many areas of town lack detectable surfaces.



A detectable surface before a raised crossing on Maine Street.

## Curb Extensions & Refuge Islands

Curb extensions and refuge islands increase pedestrian safety when crossing streets using crosswalks. Curb extensions bring the sidewalk further into the roadway to provide greater visibility of pedestrians preparing to cross. Similarly, refuge islands provide pedestrians with a place to safely pause when crossing a busy or multi-lane street. Refuge islands can protect pedestrians from errant drivers and increase pedestrian comfort.



A refuge island with flowers on Maine Street



A curb extension on Maine Street

## Rectangular Rapid Flashing Beacon (RRFB)

RRFBs draw attention to pedestrians using crosswalks and are activated by pedestrians using a button. RRFBs are particularly useful for improving pedestrian visibility at night. Brunswick has a few crosswalks that feature RRFB including two on Maine Street in the area of Bowdoin College, and one crossing Mill Street at the swinging bridge.



An RRFB on Maine Street

## Pedestrian Signals

Pedestrian signals provide pedestrians with a safe way to cross at signalized intersections. Brunswick has pedestrian signals at Maine Street and Pleasant Street and Pleasant Street and Union Street.



A pedestrian signal on Maine Street

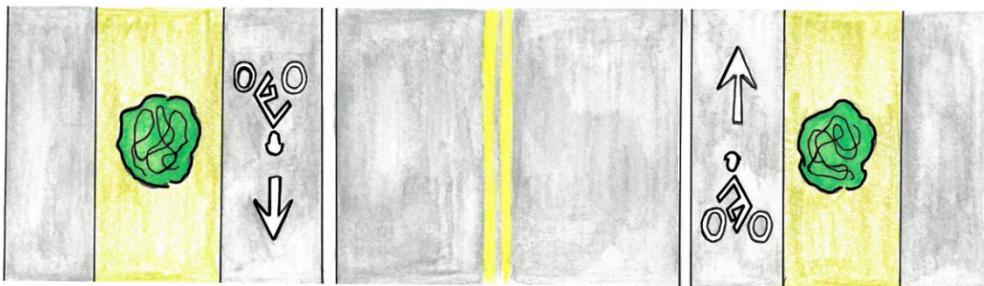
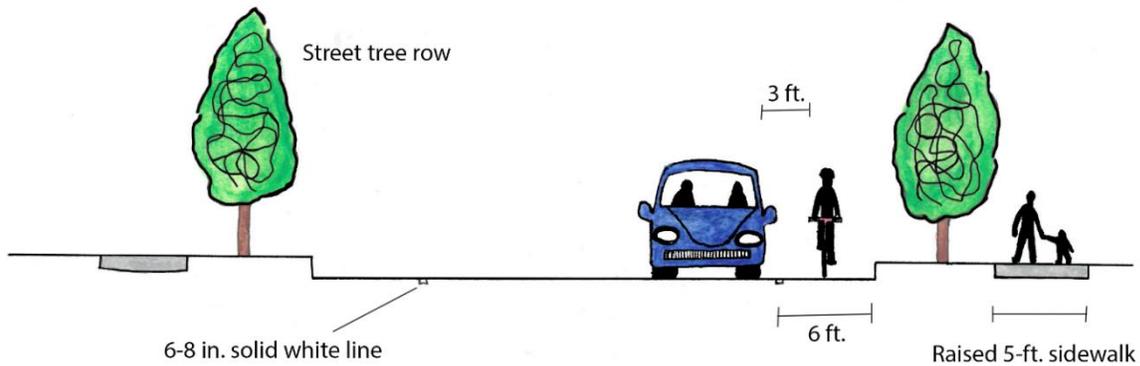
## Sidewalks

Sidewalks provide pedestrians with the most fundamental infrastructure and safety by creating a place to travel raised and separate from the roadway. Sidewalks come in a variety of widths and materials. Sidewalks vary across town with the widest on Maine Street to accommodate heavy foot traffic and outdoor dining. Sidewalks can be paved with asphalt, constructed with pavers, or brick, or made of concrete. Sidewalks should provide curb ramps for ADA compliance and be at least 6 feet wide. Many of Brunswick's sidewalks are too narrow or interrupted by telephone poles or excessive curb cuts.

# Common Bicycle Design Elements

## Bike Lanes

Bike lanes provide bicyclists with a designated lane separated from car traffic in which to travel, increasing their safety and security. Bike lanes vary in levels of infrastructure. The simplest bike lane is created using just striping along the roadway. Bike lanes can be buffered with cross striped buffer lanes or physical barriers.



## Sharrows

Sharrows are a painted marking designating a lane as used by both cars and bicyclists. Sharrows are the least expensive type of bicycle infrastructure and can draw attention to the presence of cyclists in places where roads are too narrow to stripe a bike lane.

A sharrow on Federal Street



# Common Problems and Example Solutions

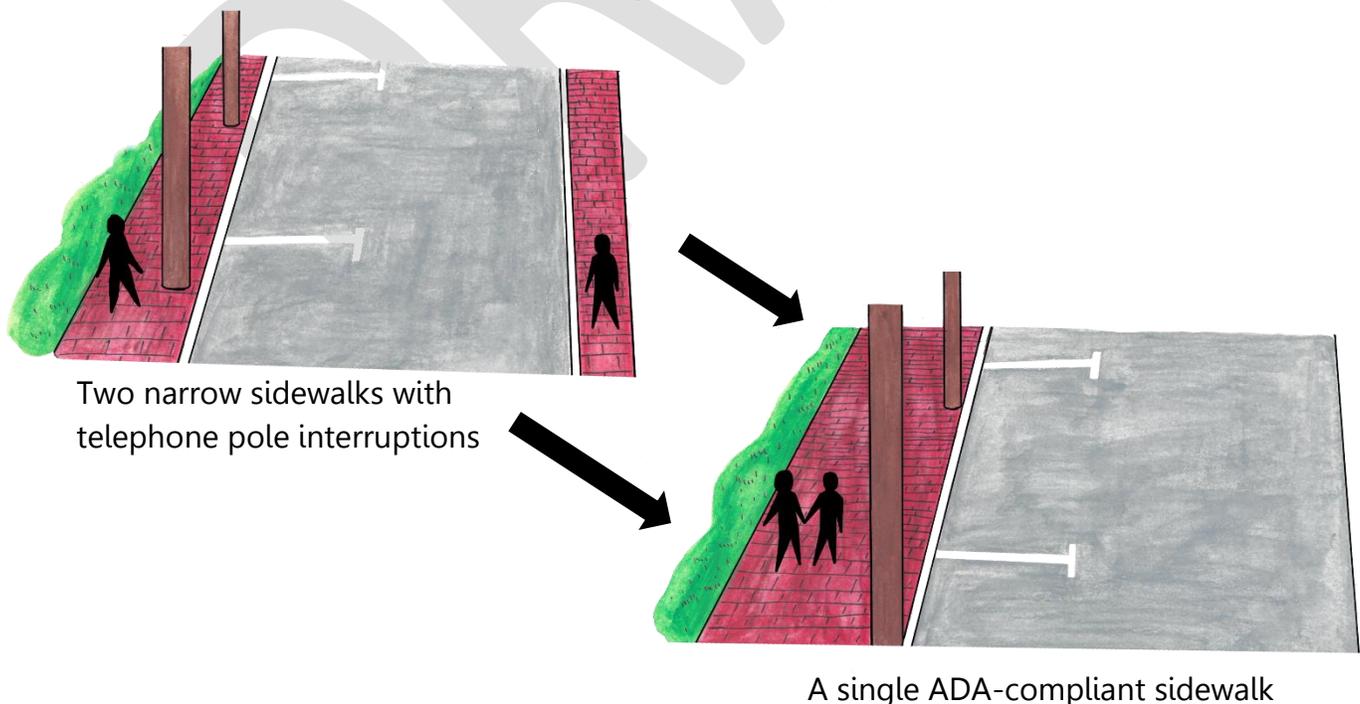
Brunswick has a number of reoccurring bicycle and pedestrian problems that manifest in different transit areas. While each particular project has its own challenges and solutions, these examples should serve as inspiration for approaching these issues.

## Interrupted, Narrow Sidewalks

Noble Street currently has sidewalks on both sides of its one-way street. The sidewalk on the north side of the street is quite narrow at points and interrupted by telephone poles all along its length. Sidewalk interruptions are also a problem on Pleasant Street. The sidewalk on the south side of the street is narrow and crowded by walls and bushes. Neither sidewalk is ADA-compliant or comfortable for pedestrians.

**Solution:** A single, widened sidewalk and shifted roadway

One sidewalk would be sufficient to handle the amount of pedestrian traffic Noble Street receives while still providing access to businesses and homes. The north side of the street would be most appropriate for a sidewalk because both the Brunswick Inn and Brunswick Station Apartments are located on that side the southern side has no businesses and fewer houses. With the removal of the southern sidewalk, the roadway could be shifted to accommodate a single, ADA-compliant sidewalk on the north side.



Two narrow sidewalks with telephone pole interruptions

A single ADA-compliant sidewalk

# Excessive Curb Cuts

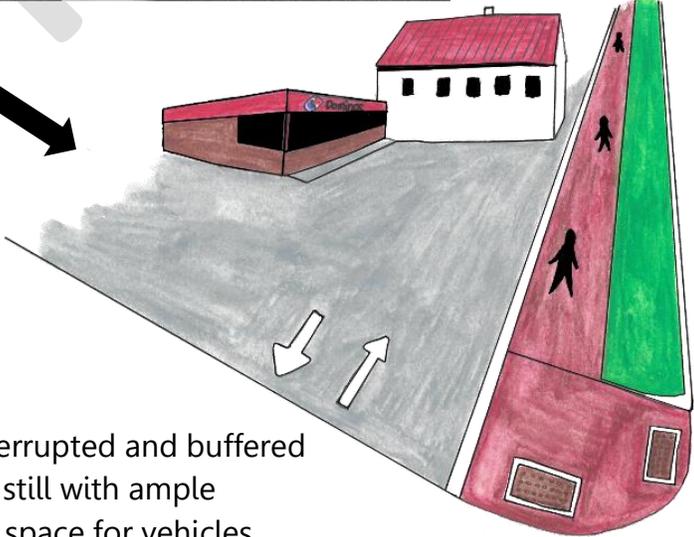
The section of sidewalk outside Domino's Pizza on Maine Street is highly fragmented by curb cuts, reducing pedestrian safety and security. Overenthusiastic curb cuts are common in Brunswick, and many areas feature sidewalks that are fragmented and compromised by too many curb cuts. Since only southbound traffic is able to turn into and out of the parking lot from Maine Street, the number of curb cuts on the Maine Street side is unnecessary when alternative access from Railroad Avenue is available.

**Solution:** close off auxiliary entrances

Domino's Pizza can be easily accessed by vehicle traffic off Railroad Avenue, and in fact northbound Maine Street traffic can already only access Domino's from Railroad Avenue. Therefore, closing the curb cuts on the Maine Street side frontage and redirecting all access to the side street would increase pedestrian safety on Maine Street while maintaining easy access to the business.



Extensive curb cuts, little pedestrian protection



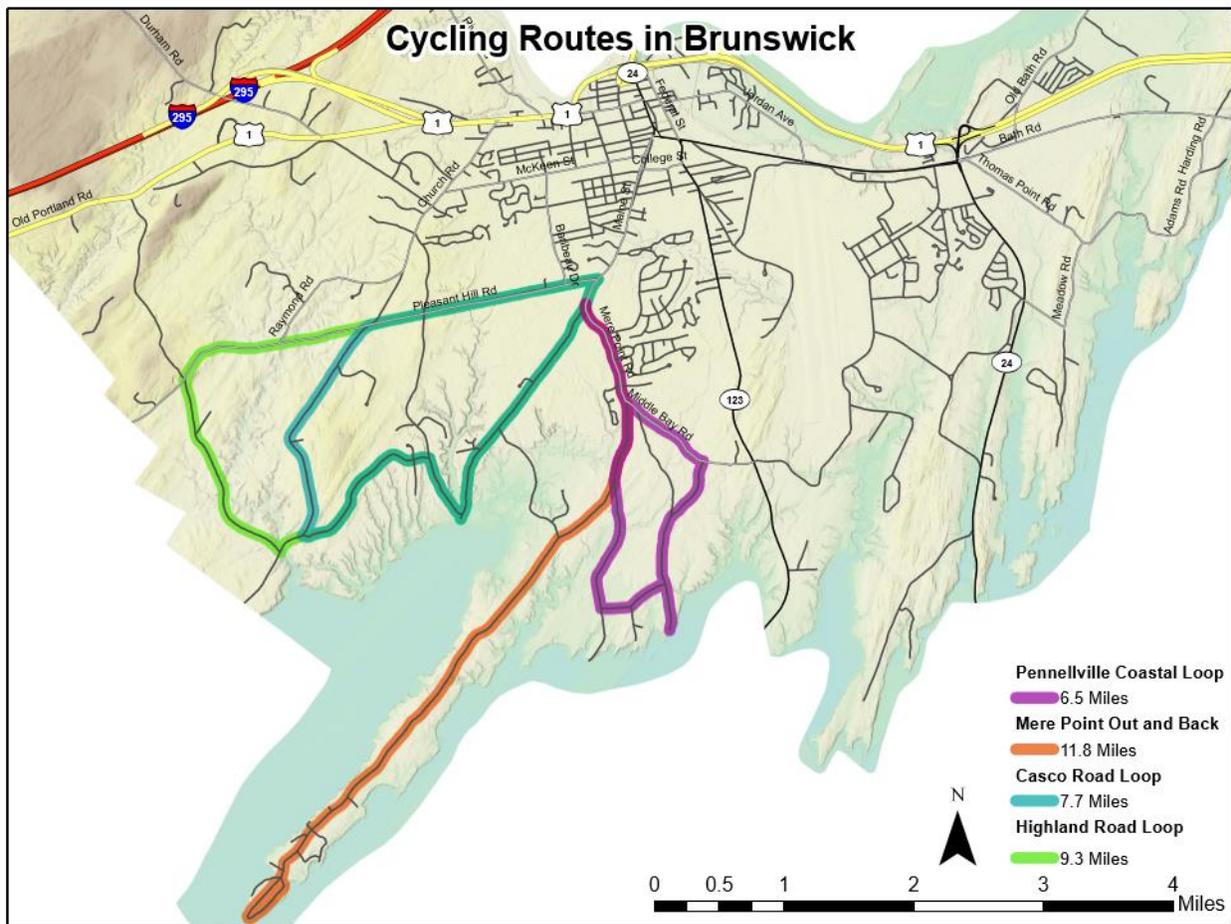
An uninterrupted and buffered sidewalk still with ample entrance space for vehicles

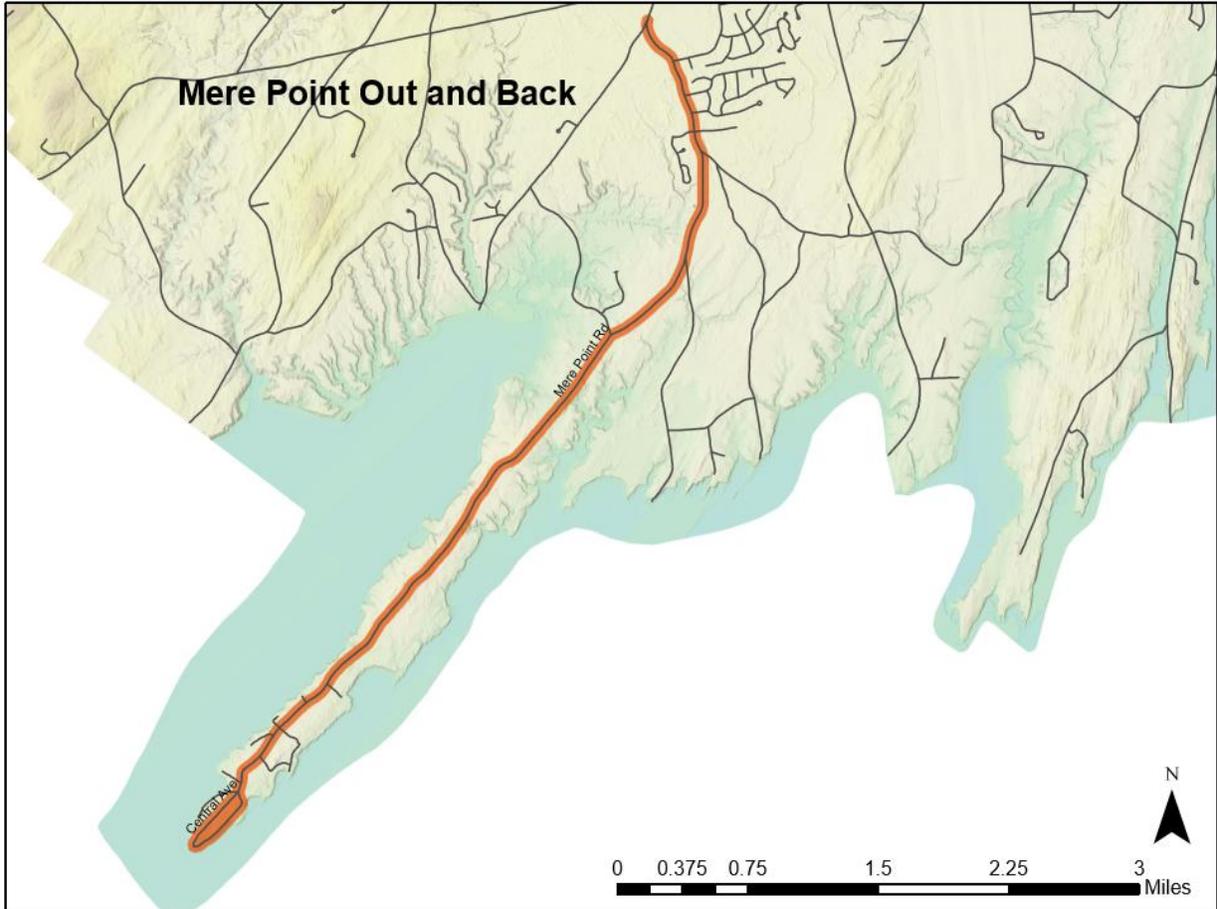
# Appendix III: Guide to Popular Bike & Pedestrian Routes



# Cycling & Pedestrian Routes

Brunswick's roads and trails offer many great biking and pedestrian routes for riders of all abilities. The roads in the southern and coastal areas of town are particularly popular, and it is important to make these well-used routes safe and welcoming to all bikers and pedestrian users. The following four routes are great ways to be active and experience Brunswick's scenic resources. These cycling routes are also popular with runners looking for longer distance. Brunswick's bike routes are more extensive than those presented here, and Brunswick's roads provide gateways to rides in Freeport, Harpswell, and beyond.





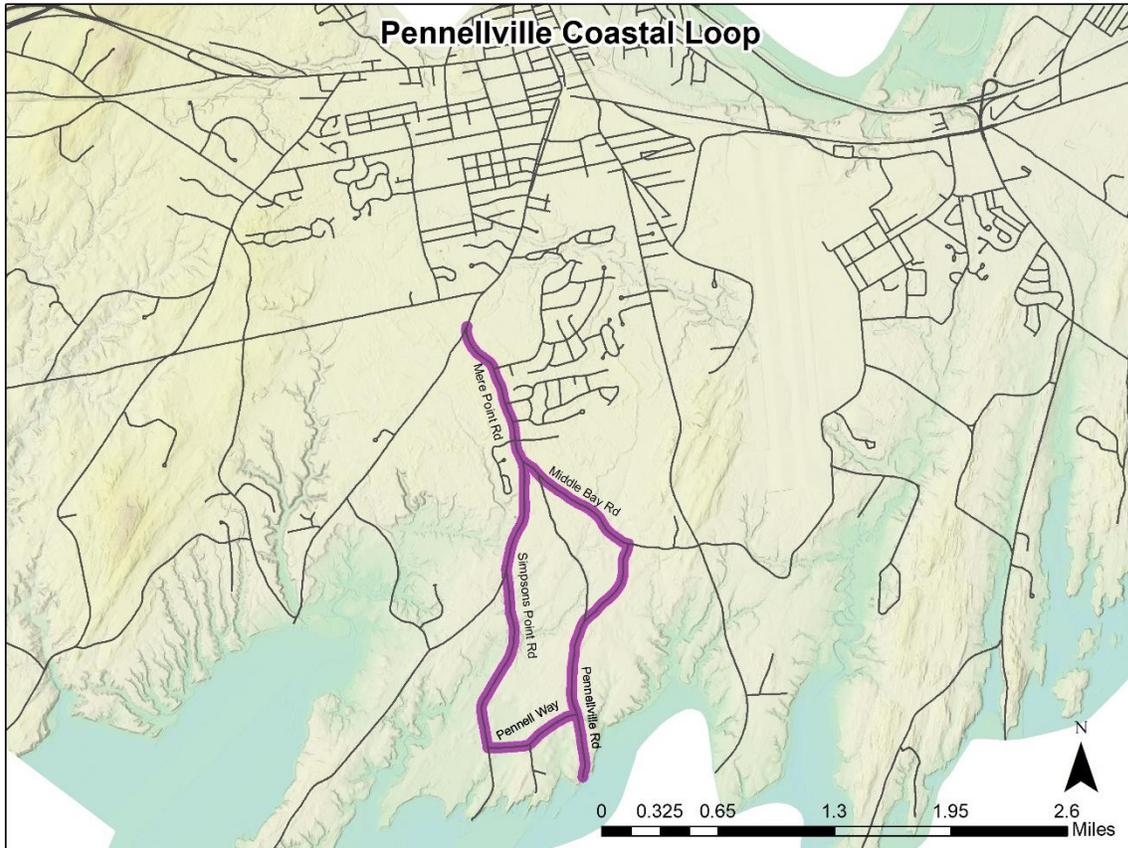
**Distance:** 11.8

**Hills:** gentle rolling hills

**Traffic:** some boat launch traffic but generally more quiet

**Scenery:** fields and farmhouses, views of the ocean, and an option to stop at the boat launch (has bathrooms)





**Distance:** 6.5 miles

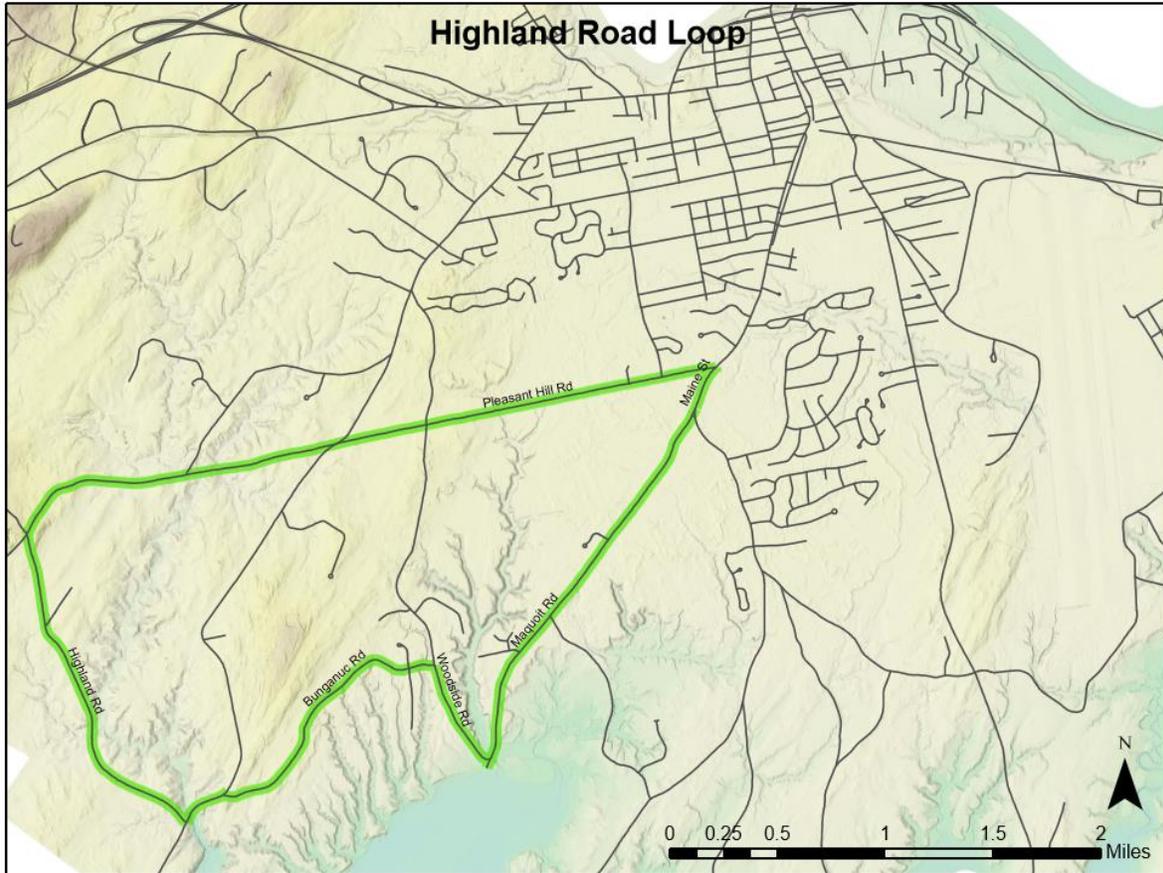
**Hills:** none

**Traffic:** minimal, busier on Mere Point and Middle Bay Roads

**Scenery:** beautiful fields, historic homes, and ocean views on the extension of Pennellville Rd.



**See it on your ride:** An iris, pond, fields, and an historic barn along Pennell Way.



**Distance:** 9.3 miles

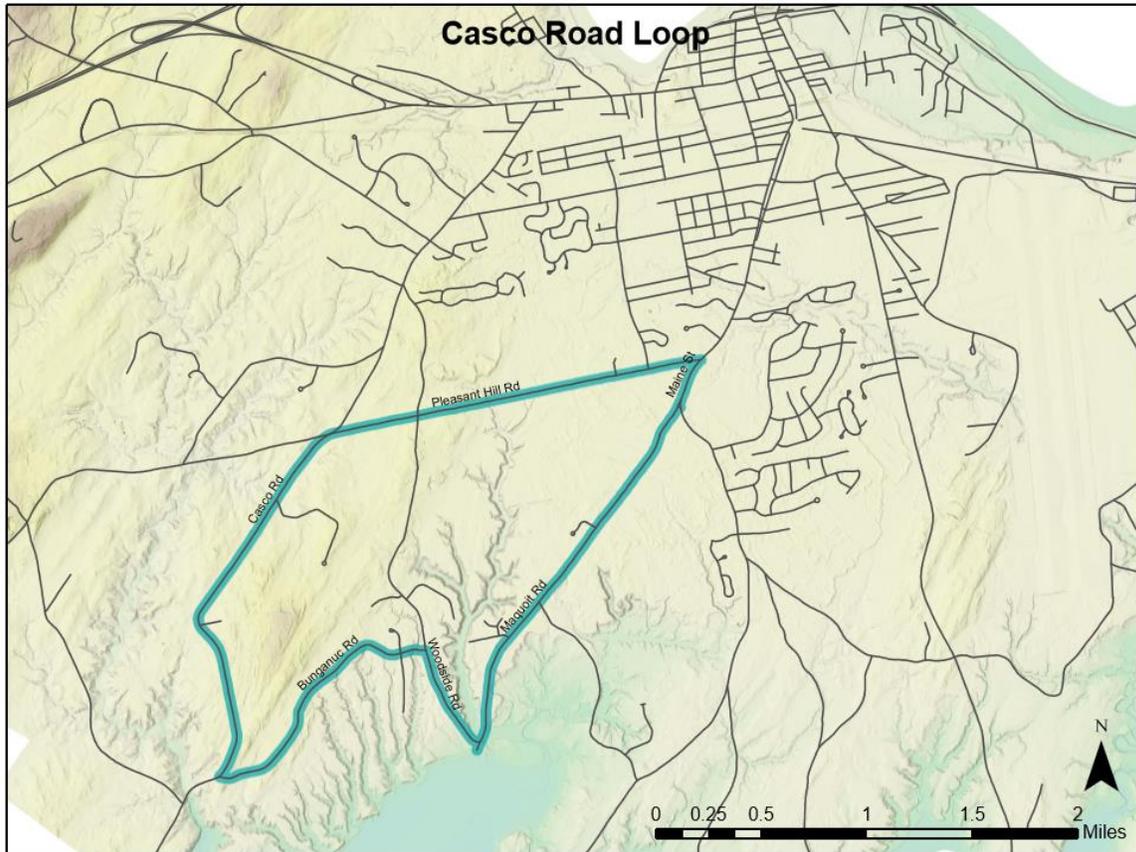
**Hills:** Rolling hills throughout with some steeper sections along Pleasant Hill Rd and Bunganuc Rd

**Traffic:** Busiest along Pleasant Hill and Maquoit Roads but otherwise quiet

**Scenery:** Outstanding views of farms and fields along Highland Rd, a stream along Bunganuc Rd, and a chance to stop and look across Maquoit Bay at Wharton Point



**See it on your ride:** Maquoit Bay, a cow along Highland Rd, and a stream along Bunganuc Rd.



**Distance:** 7.7 miles

**Hills:** Rolling hills along Pleasant Hill Rd, Casco Rd, Bunganuc Rd, and around Maquoit Bay

**Traffic:** Pleasant Hill Rd and Maquoit Rd can be busy, otherwise quiet

**Scenery:** Farms and fields along Casco Rd, stream and nice forest along Bunganuc Rd, and a place to stop at Maquoit Bay



**See it on your ride:** Clock tower farmhouse on Pleasant Hill, a barn along Casco Rd, and tree coverage on Bunganuc.

# Off-Road Cycling and Running Options

Brunswick's trail systems and paths also offer many great opportunities and flexibility for cyclists and pedestrians. Trails and paths offer a variety of surfaces for runners and options for mountain biking. Brunswick's trails and paths, located on conservation land, Brunswick Landing, and along the river, offer quieter options for recreation away from the car traffic of the roads. This section presents some of Brunswick's off-road trail options, but a more complete list can be found on the Brunswick Topsham Land Trust Website.



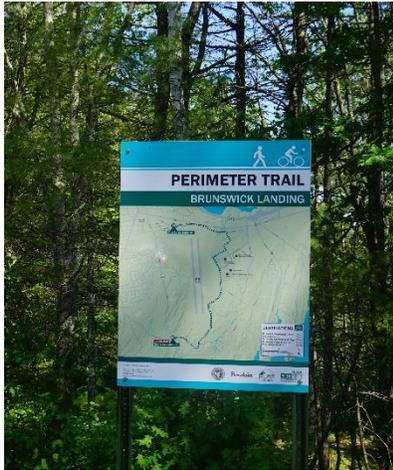
## Androscoggin Bike Path

The paved Androscoggin Bike offers a lane for runners and a lane for bikers and follows along the Androscoggin River towards Bath. It starts at the end of Water Street, where there is parking, and extends for 2.6 miles. The Bike Path also features playing fields, a dog park, and boat launch. The Bike Path is a great off-road alternative to Brunswick's trail systems

for those looking for pavement and a more comfortable recreational experience.

## Town Commons

The Town Commons offers 183 acres of forest hosting a number of trails appropriate for running, walking, or mountain biking. The Town Commons are accessible from a parking area on Harpswell Road or from a trail behind the Bowdoin Fields that winds behind Maine Pines Racquet & Fitness and across Baxter and Hovey Lanes. The Town Commons extend to Middle Bay Road and feature dirt trails through woods and a pitch pine barren.



### **Brunswick Landing Perimeter Trail**

The Brunswick Landing Perimeter Trail circles the Brunswick Landing in 5.2 paved miles. It can be accessed at the end of Pine Street. The trail is on paved roads and paths.

### **Neptune Woods**

Neptune Woods on Brunswick Landing is a former fitness trail used by BNAS. The trail features narrow, forest paths and is an excellent spot for mountain biking.

### **Kate Furbish Preserve**

The Kate Furbish Preserve includes 591 acres gifted to the Town by the military after the closure of BNAS. The preserve has some walking trails, but will be developed further for recreation.

### **Maquoit Bay Conservation Land**

This 124-acre parcel of conservation land features a 0.6-mile forest trail to Maquoit Bay advantageous for short walks, cross country skiing, and dog walking.

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# Appendix IV: Completed Popup Projects



# Case Study 1: Bath Road, Sills Drive, and Pine Street Popup Project

In the spring and summer of 2019, the BBPAC, Town staff, BPCM, and a Bowdoin College class collaborated to develop a popup demonstration project featuring temporary traffic calming retrofits at Sills Drive, Bath Road, and Harpswell Avenue. Project plans were prepared by a licensed professional engineer to ensure the safety of turning vehicles and were approved by the Maine Department of Transportation (Maine DOT).

## **Plan Development, Implementation & Observation**

The project began as a collaborative effort to lend technical support to a Bowdoin class working on increasing public awareness about pedestrian safety. The project site was selected based on observations of frequent pedestrian use of an unpaved and potentially unsafe path on Sills Drive and Bath Road. Site visits and observations of traffic rolling through red lights onto Sills Drive from eastbound Bath Road informed the installation of a radius of temporary plastic bollards around the existing curb. Communication with neighboring landowners led to the abandonment of a plan to install orange fencing to increase public awareness for the potential need for a sidewalk along Bath Road to Pine Street.

BPCM prepared plans for the project which were reviewed by Town Engineer, Director of Planning and Development, and the Town Manager. BPCM sent the plans to MDOT Engineer for approval. BBPAC also reviewed the project. Police Department and Fire Department personnel raised concerns about public safety and liability when briefed about the project by the Town Planner.

Upon approval an orange fence was installed along the east corner of Sills Drive where an informal pedestrian path is evident to make the path more obvious to vehicles and pedestrians and to raise interest for permanent pedestrian infrastructure improvement. Bollards were installed at the corner of Bath Road and Sills Drive and at the crosswalk on Sills Drive near College Street.

## **Results**

Speed data obtained both during and after the popup installation by the BPCM staff intern indicated that the project successfully reduced the speed of cars moving eastbound on Bath Road and southbound (from Bath Road) to Sills Drive. It was concluded that by reducing the speed of traffic, the project increased safety for pedestrians crossing the road corridor.

The project affected cyclists far less positively. While some riders reported that the increased conspicuity of the travel lane increased their sense of safety, most found the reduced shoulder width unsettling. Many commented that the white delineators were too similar in color to the travel lane paint to be easily visible to cyclists and increased their risks for crashes.

The orange fence for the pedestrian walkway generated speculation that a possible construction project was in the works at the adjacent parcel but raised almost no awareness for the need of a sidewalk between Sills Drive and the discontinued section of Pine Street.

### **Lessons Learned About the Process**

After about three (3) months, the demonstration project was removed due to negative public feedback and the Town Council's subsequent request to remove the project. Not only did the popup demonstration project not receive initial support from the Fire Department and the Police Department, the Town Council was caught off guard when complaints were received after the project was installed. The schedule for removing the project was delayed longer than anticipated.

Although the project was discussed by staff on local television (TV3) during BBPAC meetings, the majority of the public and most of the Town Council were unaware of the project goals and did not understand the collaboration between the Town, BPCM, BBPAC and Bowdoin students until post-installation.

Project goals to make Brunswick's downtown safer for pedestrians and collaborate with Town staff and Bowdoin College students were not met due to the following significant errors:

1. Lack of stakeholder engagement including the members of the Merrymeeting Wheelers and the Brunswick Downtown Association (BDA).
2. Not including public safety personnel in the project design phase including Fire Department and Police Department personnel.
3. Not presenting the project goals or schedule for installation and removal to the Town Council prior to installation.
4. Designing the project for only pedestrians rather than multi-modal traffic and failing to consider the safety and comfortable of vulnerable bicyclists.

## Case Study 2: Union Street Pedestrian Seasonal Popup Project

In the summer of 2019, Town of Brunswick Planning Department staff and representatives from the Bicycle Coalition of Maine collaborated to design and install a temporary project to protect pedestrians from cars along Union Street behind the Town Hall from Brooks Feed and Farm to the Bike Shop. The western sidewalk on Union Street is interrupted in this area by extensive curb cuts and parking lots. Striping already existed to designate an area of the pavement for pedestrian use; however, there was no other protection from cars, compromising pedestrian safety and comfort.

### **Plan Development, Implementation & Observation**

The design of a temporary line of bollards was settled on by Town staff and BPCM. This time, the project was presented to the Town Council prior to installation. A public site walk was also held at the beginning of the design process.

The installation of the project was undertaken by Town Planning Department Staff and a representative from BPCM. Distances were mapped out and bollards were installed along the edge of the pedestrian zone using sticky pads. Horizontal delineators were chosen not to be used due to the availability of bollards.

Neighboring landowners at Brooks Feed and Farm and the Bike Shop were consulted for approval on the project even though the bollards were installed on Town right-of-way. Landowner approval was helpful for mitigating complaints from delivery trucks and spreading awareness of the project to visitors of the stores.

The Department of Public Works provided funding for the project with coordination from the Town Engineer. Budgets for popup projects are still a point of uncertainty.

### **Results**

No negative complaints about the project were received by the Town Planner and pedestrians have been observed making use of the project.

### **Lessons Learned**

While the feedback on the Union Street project was largely positive, improvements to the popup project process remain. Data collection was a missing aspect of the project. No data was gathered to confirm the results of the project, and better surveying would be needed to justify capital improvements from popup projects. Additionally, while the project was useful for demonstrating the need for capital improvement, advocacy is

necessary for permanent improvements. A means to better measure the cost of a permanent improvement is also needed.

The difference between temporary and seasonal projects was an important distinction highlighted during this project. The Union Street installation will at the request of the Town Manager be a seasonal project, in place each year from Spring to Fall. Temporary projects are not reinstalled each year.

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