



# *Town of Brunswick*

## Bicycle and Pedestrian Improvement Plan 2020 Update



Approved by Brunswick Bicycle and Pedestrian  
Advisory Committee (BBPAC) May 27, 2021

Adopted by Brunswick Town Council August 16, 2021

# Acknowledgements

This update of the Bicycle and Pedestrian Improvement Plan is the result of the efforts of the Brunswick Bicycle and Pedestrian Advisory Committee, the Town of Brunswick staff, and the input of community members and stakeholders.

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# Executive Summary

This Bicycle and Pedestrian Improvement Plan Update, "the Plan," serves as a guide for public transportation decisions that affect pedestrians and bicyclists in Brunswick. The Brunswick Bicycle and Pedestrian Advisory Committee (BBPAC) endeavored to update the March 7, 2005 plan, beginning in the summer of 2019, to inject bicycle and pedestrian values into current and future public transportation projects in Brunswick and identify opportunities for private connections that improve the local bicycle and pedestrian transportation system.

The BBPAC was created by the Town Council to advocate and work towards improving the bicycle and pedestrian network in Brunswick and serve as an information source for Town officials and the community, monitoring national and regional trends, and sharing information with other communities. The plan furthers the charge of the BBPAC.

It is the view of the BBPAC that community context and stakeholder values must be included in the evaluation of the transportation system. The Plan reflects the BBPAC's perspective that rational transportation planning that solely relies on data and assumes complete knowledge of bicycle and pedestrian stakeholder preferences without community engagement is incomplete.

The Brunswick Complete Streets Policy was adopted by the Town Council in pursuit of equitable public rights-of-way. Improvements for bicyclists and pedestrians are often within transportation systems that serve multiple users including automobiles, equestrians, trains, and in community settings with varying land use goals and priorities. The Plan informs where bicycle riders and pedestrians can reasonably be expected to use or desire the use of public

rights-of-way.

This Plan hopes to create new bicycle and pedestrian-oriented transportation facilities, inspire the development of traffic calming plans to enhance the context of neighborhoods, and improve safety for motorists, pedestrians, and bicyclists in existing transportation systems.

This Plan intends to inform and educate transportation system decision makers in Brunswick. The Town Council or their designee is encouraged to review the Plan to understand bicycle and pedestrian stakeholder values and preferences in any planned transportation project in Brunswick. A survey of stakeholder priorities and a subsequent plan update may be appropriate prior to the 2026-2027 fiscal year (July 1 – June 30).

- Unless otherwise directed by the Town Council, the Plan must be managed and interpreted by the BBPAC.
- Unless otherwise directed by the Town Manager, the Department of Planning and Development staff must provide technical support for the management of the Plan.

## Relationship to Capital Improvement Program (CIP)

The CIP process is the principal opportunity for BBPAC to learn about anticipated transportation projects, provide its views regarding complete streets issues, and advocate for projects that further the bicycle and pedestrian stakeholder priorities identified in the Plan (and associated Story Map).

The plan is expected to be reviewed annually by the BBPAC to prepare recommendations for the CIP. The BBPAC is expected to actively par-

ticipate in the CIP process in accordance with the CIP Policy and Procedures established in 2013, as amended; the BBPAC Charge; and the Complete Streets Policy (Appendix G. Brunswick Zoning Ordinance and Appendix IV in the Plan). The CIP work schedule is established by the Town Manager. CIP projects can be submitted at any time. Department project requests are generally submitted between mid-August and early-October. The Town Manager reviews projects, prepares the CIP document, and presents the CIP to the Finance Committee by early November. From November to December the Finance Committee schedules meetings for presentations and workshops. The CIP is finalized in February. The CIP is submitted with the town budget by May 1. The finalized town budget must be adopted by June 15. The CIP should consider the goals and priorities in this plan for transportation projects.

## The Plan Stakeholder Process

**Consulting Services** - The Bicycle Coalition of Maine (BCM) was hired by the Town of Brunswick to prepare a stakeholder survey for the plan update, co-facilitate stakeholder meetings with planning staff, and review draft plan documents.

**Stakeholder Surveys** - The survey prepared in consultation with the Department of Planning and Development staff and BBPAC was posted online on the Department of Planning and Development webpage and was available in paper form at public meetings and collected at the end of every public meeting. 203 surveys were compiled to reveal the town areas of high interest.

**Local Radio** - BBPAC members discussed the Plan update and anticipated stakeholder process with local radio host Jim Bleikamp on WCME during a live broadcast on Monday, January 6th, 2020. Planning Department staff discussed Plan progress the morning of the Thursday, May 27th, 2021 BBPAC public hearing for the Plan on WCME. The public was encouraged to participate in the planning process

during both radio interviews.

**Stakeholder Meetings for Planning Areas** - All stakeholder meetings were advertised on Brunswick's local television station (TV3) and on social media accounts hosted by the town Public Works Department, Police Department, and the Comprehensive Plan Committee (Department of Planning and Development). The BBPAC members, BCM staff, and town staff participated in all meetings.

The following areas were delineated for public stakeholder meetings and planning purposes:

### **The Downtown areas stakeholder meeting was held on Wednesday, January 8, 2020 at 6:30 pm at Curtis Memorial Library.**

Downtown areas include land within the growth zone boundary as delineated in the 2008 Comprehensive Plan and the 2017 Zoning Map, as amended (see Planning Areas map). The meeting addressed Maine Street, Pleasant Street, Bowdoin College, Brunswick (train) Station, the Androscoggin River Path, the planned Androscoggin River Walk (between Topsham and Brunswick), residential neighborhoods, and public schools.

### **The Rural area stakeholder meeting was held under snowy conditions on Thursday, January 16, 2020 at 6:30 pm at Crooker Theater in the Brunswick High School.**

Rural areas include all land in Brunswick outside the growth zone boundary as delineated in the 2008 Comprehensive Plan and the 2017 Zoning Map, as amended (see Planning Areas map).

The meeting covered interconnection within Brunswick's rural areas and to points of interest within the growth zone and regional connectivity to surrounding towns. The Forecaster newspaper wrote about Brunswick's rural stakeholder meeting in a story entitled, "Brunswick Using Public Input to Update Bike-Ped Improvement Plan" dated January 22, 2020.

### **The Brunswick Landing and Cook's Corner area stakeholder meeting was held on Jan-**

## uary 27, 2020 at 6:30 pm at Southern Maine Community College at Brunswick Landing.

Brunswick Landing and Cook's Corner areas include all land from Brunswick Landing east and to the edge of the growth zone boundary (see Planning Areas map). The meeting covered the Brunswick Landing perimeter trail concept as delineated in the Recreation, Trails, and Open Space (RTOS) Plan, neighborhood and business connectivity on existing and future roads, preferred areas for trail systems, bicycle facilities, and sidewalk connections to points of interest.

## The stakeholder meetings concluded with a town wide stakeholder meeting held on February 27th at 5:00 pm at Brunswick Town Hall at 85 Union Street.

The town wide stakeholder meeting included staff reports of findings from the stakeholder surveys and highlighted findings from each planning area meeting. Staff presented a heat map of areas in Brunswick with the highest stakeholder interest for bicycle riders and pedestrians. The Forecaster newspaper wrote about Brunswick's town wide stakeholder meeting in a story entitled, "Maine Street, Bath Road, top public's wish lists for Brunswick bike-ped improvements" dated February 28, 2020, and updated March 9, 2020.

## Story Map

The Town of Brunswick created an online "Bike Ped Story Map" available on the BBPAC webpage to ensure bicycle and pedestrian stakeholder priorities for the Plan are accessible to the public. The Story Map was used to develop planning area recommendations in this plan.

## The Story Map must be considered for project development and preparing BBPAC advice for transportation projects that affect bicycle riders and pedestrians.

The Story Map provides an inventory of bicycle and pedestrian observations and preferences from the January 2020 stakeholder process including survey feedback, notes on paper maps from group breakout sessions, and other identified locations of bicycle and pedestrian plan-

ning interest including existing trails, parks, and open spaces, and an inventory of paper streets where the town may establish rights-of-way through action by the Town Council.

These mapped stakeholder priorities provide a basis for the future development of transportation plans for bicyclists and pedestrians (small area interconnectivity plans, road corridor plans, neighborhood traffic calming plans, downtown wayfinding plans, etc.) or to assist in prioritizing bicycle and pedestrian improvement projects and plan elements that have already been approved by the Town Council but are yet to be funded and/or implemented (see CIP projects intended to implement the Recreation Trails and Open Space Plan [RTOS], Open Space Management Plan, Cook's Corner Master Plan, Master Plan for Downtown Brunswick and the Outer Pleasant Street Corridor).

The Story Map considered priority areas for bicyclists and pedestrians in the town based off six categories outlined by The League of American Bicyclists:



**Engineering:** Create safe and convenient places to ride, walk, and park.



**Education:** Give people of all ages and abilities the skills and confidence to ride and/or walk to school.



**Encouragement:** Create a strong bike and pedestrian culture that welcomes and celebrates biking and walking



**Enforcement & Evaluation:** Ensure safe roads for all users and plan for bicycling and walking as a viable option.



**Equity, Diversity & Inclusion (EDI):** Achieve the vision of a bike and pedestrian friendly Brunswick for everyone.



**Environment:** Attempt to mitigate any environmental concerns or issues.

## The Plan and Relationship to Other Plans

The Plan describes specific recommendations for improvement in the Planning Areas and Goals for All Planning Areas sections. These recommendations are based on stakeholder feedback and consensus within the BBPAC. The plan is intentionally not prescriptive where specific recommendations for bicycle and pedestrian facilities and desired improvements require further planning and evaluation. However, the Story Map and the guidance within the Plan identify priority locations where the future dedication of time and resources for planning and/or evaluation will yield the highest public reward.

Several plans have been adopted by the Town Council but have not been selected for funding or implementation due to competing priorities and limited funding. The Plan and associated Story Map may be helpful for prioritizing bicycle and pedestrian improvements described in other adopted land use plans. Relevant plans adopted in Brunswick include:

### Brunswick Comprehensive Plan, as updated

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

### Cook's Corner Master Plan

### Parks, Recreation, and Open Space Plan (2002)

### Recreation Trails and Open Space Plan (RTOS)

### BNAS/NASB Reuse Master Plan (for Brunswick Landing)

### Androscoggin River Walk

### Androscoggin River Multi Use Path

### 2004 Androscoggin-to-the Kennebec Bicycle Path Feasibility Study (A to K Trail)

Inconsistency between adopted plans should be evaluated for relevance to any planned or otherwise desired improvement described in this plan. If applicable, recommendations for transportation improvements that are derived from the information in this plan should note any related planning goals or anticipated actions in other adopted plans.

Plans that are currently being drafted and may provide further relevant guidance include the Comprehensive Plan Update (anticipated 2021-22), the Mare Brook Watershed Plan (anticipated 2021-22), the MaineDOT Heads Up! Safety Is a Two-Way Street: Pedestrian Action Plan (anticipated 2021), and the Cook's Corner Commercial Corridor Revitalization Plan (2021-22).

## Complete Streets Policy

Advice for bicycle and pedestrian improvements in the public right of way should be consistent with Brunswick's Complete Streets Policy. Special attention is advised for standalone road projects valued over \$100,000, regular paving, and other new infrastructure projects including sidewalks and resurfacing. The Complete Streets Policy is an appendix in the Brunswick Zoning Ordinance that serves to improve road conditions for all users. See Appendix IV: Brunswick Complete Streets Policy (also see Appendix G of Town Zoning Ordinance)

## Maine Statute

The Town Council conditionally approved this Plan update with the inclusion of a reference to Title 29-A: "Motor Vehicles and Traffic." This statute provides legal standards for vehicles and traffic on a public way. As defined in Title 29-A, "traffic" means pedestrians, ridden or herded animals, vehicles, bicycles and other conveyances either singly or together using public way for travel.

# BBPAC and the Bicycle and Pedestrian Improvement(s) Plan History

The BBPAC was formed by the Town Council in 1995 to offer advice on making the Town more bicycle and pedestrian friendly. The BBPAC Charge was approved by the Town Council in 1999 and has been amended by the Town Council over the years to reflect the needs of the Town Council and by extension the citizens of Brunswick.

The Brunswick Bicycle and Pedestrian Improvement Plan was adopted on October 13, 1998 and updated by the BBPAC on December 4, 2004. The Town Council adopted the updated plan on March 7, 2005. A subsequent plan update was prepared by the BBPAC in 2016 but was not advanced to the Town Council for review and adoption.

## Planned Improvements to the BBPAC

### Measurable Goals/Intended Outcomes

Make recommendations to the Town Council and staff that improve the bicycle and pedestrian network in Brunswick. The final language of the charge requires committee recommendation to the Town Council and then action by the Town Council to be adopted. The official charge is as adopted and most recently amended by the Town Council.

### Actions

Review and Update the BBPAC Charge to:

1. Update the BBPAC mission to include "infrastructure" as part of the bicycle and pedestrian network review.
2. Revise the BBPAC charge for clarity.
3. Enable BBPAC coordination with adjoining community bicycle and pedestrian improvement groups.

4. Enable BBPAC coordination with other groups which have an impact on the accessibility to safe riding and walking.
5. Explain the CIP review procedure to encourage BBPAC participation in the CIP process.
6. Specify the preferred time of year for an annual presentation of BBPAC work accomplishments.
7. Review the BBPAC meeting time and place.
8. Enable the BBPAC to provide advice to the Town Council.

## Brunswick Bicycle and Pedestrian Advisory Committee

### Committee's Charge

Approved by Council on April 20, 1999

Amended by Council on August 3, 2009

Amended by Council on March 2, 2015

Amended by Council on February 1, 2016

### Mission:

- To advocate and work towards improving the bicycle and pedestrian network in Brunswick.
- 1. Using the "Brunswick Bicycle and Pedestrian Improvements Plan" as a tool work with the Town Manager, the Department of Planning and Development, the Department of Public Works, and the Department of Parks and Recreation to prepare an annual schedule of improvements to be included in the Capital Improvement Plan (CIP).
- 2. Seek alternative (to Town) funding sources.
- 3. Act as an information source for Town officials and the community; keep in touch with what is going on regionally and nationally; share information as needed with other communities.
- 4. Make recommendations as warranted on proposed project requiring development review by the Planning Board.

### Procedure:

1. Present recommendations for annual bicycle/pedestrian CIP to the Town Council for approval.
2. Present to the Town Council an annual report on Committee activities and accomplishments.
3. Continue to have a monthly meeting at Town Offices.
4. Seek Councilor input when his/her district contains a proposed or active project.
5. Continue to coordinate with Town committees by having BBPAC members serve on, for example, the Open Space Task Force and Recreation Commission.

### Membership:

1. Town Council to appoint seven (7) members of which at least one will be a member of the Town Council, who will be appointed annually by the Council Chair in January.
2. The term of office will be three years beginning June 1, 2016. Current membership will be staggered by vote of the Committee so that two members serve one year and two serve two years beginning June 1, 2016. The remaining two members will serve for three years. The Town Councilor's term will annually expire on December 31st.
3. At the end of his/her term a departing member may reapply for membership and join the pool of applicants from the residents of Brunswick.

# Definitions

**Arterial Road-** Highways of economic significance that provide for intrastate or interstate through travel for large volumes of traffic at relatively high speed with minimum interference. Depending on their location and function, arterials are categorized as rural or urban and as principal or minor. (MaineDOT) [https://www.maine.gov/mdot/publications/docs/guides/SPEAK\\_MaineDOT\\_web.pdf](https://www.maine.gov/mdot/publications/docs/guides/SPEAK_MaineDOT_web.pdf)

**Bicyclist-** An individual traveling for utility or pleasure via bicycle.

**Bike lane-** A striped, designated travel lane that provides space separated from vehicles for bicyclists in the roadway.

**Bollard-** A post that can be affixed to pavement.

**Collector Road-** Routes that gather traffic from local roads and streets and deliver it to the arterial system. (MaineDOT) [https://www.maine.gov/mdot/publications/docs/guides/SPEAK\\_MaineDOT\\_web.pdf](https://www.maine.gov/mdot/publications/docs/guides/SPEAK_MaineDOT_web.pdf)

**Crosswalk-** A painted and sometimes raised section of road giving pedestrians a centralized point at which to cross travel lanes.

**Curb Cut-** An entry into a street or road or right-of-way for vehicular traffic.

**Curb Extension/Bump Out-** A section of sidewalk that juts out into the street at a crosswalk to give pedestrians more visibility to vehicles, reduce the distance and time that pedestrians travel in the street, and provide traffic calming by narrowing the roadway.

**Delineator-** A removable bollard or similar object for pop-up projects.

**Detectable Warning Surface-** A textured panel inset into a sidewalk at the start of a crosswalk signalizing the end of the sidewalk to visually impaired pedestrians.

**East Coast Greenway (ECG)-** A signed bicycle route from Florida to Maine made up of roads and trails. The East Coast Greenway passes through Brunswick.

**Green Infrastructure (for bicyclists and pedestrians)** – Urban design practices such as sidewalk widening, landscaping, and traffic calming to prioritize pedestrian and bicyclist travel. Landscaping options may include stormwater treatment facilities such as bioswales, vegetated infiltration, vegetated filter basins or rain gardens in curb extensions, islands, and chicanes to absorb and filter rainwater and runoff pollution from streets. (NACTO) <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/green-infrastructure/#:~:text=Description,based%20on%20ecosystem%20network%20models.&text=A%20vegetated%20infiltration%20basin%20or,slowly%20infiltrates%20into%20the%20ground.>

**Highway-** Arterial highways, collector roads, and local roads in the federal hierarchy of roads. U.S. Federal Highway Administration [https://www.fhwa.dot.gov/planning%20/processes/statewide/related/highway\\_functional\\_classifications/section02.cfm](https://www.fhwa.dot.gov/planning%20/processes/statewide/related/highway_functional_classifications/section02.cfm)

**Local Road-** The classification for all public roads and streets not classified as arterials or collectors. (MaineDOT) [https://www.maine.gov/mdot/publications/docs/guides/SPEAK\\_MaineDOT\\_web.pdf](https://www.maine.gov/mdot/publications/docs/guides/SPEAK_MaineDOT_web.pdf)

**Lower Maine Street-** The section of Maine Street comprising the downtown from the town line to Topsham south to Bath Road.

**Paper Street-** a proposed way laid out on a recorded subdivision plan where the public has rights of incipient dedication to public use. See Title 23 M.R.S Section 3031.1 Public and private rights in proposed, unaccepted ways in subdivisions.

**Pedestrian-** A public stakeholder who travels by foot, wheelchair, or with the aid of another walking assistance device.

**Pedestrian Activated Crossing-** A crosswalk connected to a traffic light where a timed sign provides pedestrians with a chance to cross by stopping traffic.

**Pop-up/Pilot Demonstration Project-** A temporary bicycle and pedestrian awareness project used to test infrastructure for potential future implementation.

**Rectangular Rapid Flashing Beacon (RRFB)-** pedestrian activated flashing lights and signage for crosswalk to improve motor vehicle compliance of stopping for pedestrians in crosswalks at unsignalized locations. See MaineDOT Highway Safety Improvement Program (HSIP) RRFB Plan Summary (2017) [https://safety.fhwa.dot.gov/ped\\_bike/step/resources/docs/gems\\_ME-508compliant.pdf](https://safety.fhwa.dot.gov/ped_bike/step/resources/docs/gems_ME-508compliant.pdf)

**Right-of-Way (ROW)**-A strip of specifically described land encompassing an existing or future public or private path, street or road. See MDOT Right of Way Manual (December 2015) for further ROW guidance.

**Road Diet**- removing travel lanes from a roadway and utilizing the space for other uses and travel modes. See MaineDOT Guidelines to Implement a Road Diet or Other Features Involving Traffic Calming, April 2016 [https://safety.fhwa.dot.gov/road\\_diets/guidance/docs/maineDOTroad\\_diet.pdf](https://safety.fhwa.dot.gov/road_diets/guidance/docs/maineDOTroad_diet.pdf)

**Shared Use Path**- A path that accommodates both pedestrians and bicyclists, often with demarcated lanes for each group.

**Sharrows**- Shared bike lane marker. See MaineDOT Traffic Engineering Striping and Stenciling Handbook (2018) <https://www.maine.gov/mdot/traffic/docs/Maine-DOT-Traffic-Engineering-Striping-and-Stenciling-Handbook.pdf>

**Sidewalk**- A walkway separated from the travel lane by a curb or distance. The Americans With Disabilities Act (ADA) requires a 5-foot width.

**Speed Study** – A speed limit review that takes into account widespread safety research, personal experiences, total number of reported crashes and the effect of speed as a cause of those crashes, and roadway features such as turns and curves, dips and rises, the types of on-street parking, and road and shoulder conditions. Local development conditions reviewed for a speed study may include the number of driveways, entrances, and intersections are in the area and how close together they are, the presence of traffic signal lights, the number of businesses, the vehicle mix (i.e, commercial thru traffic or local and residential traffic), school zones, and pedestrian crossings. A speed study typically considers the 85th percentile speed to establish a speed limit that is reasonable and safe for most motorists.

**85th Percentile Speed** – The speed at which 85% of the sampled motorists drive. This is generally the posted speed limit.

**Speed Table**- A raised section of a roadway that can act as traffic calming infrastructure.

**Town way**- **A**. An area or strip of land designated and held by a municipality for the passage and use of the general public by motor vehicle; **B**. All town or county ways not discontinued or abandoned before July 29, 1976; and **C**. All state or state aid highways, or both, which shall be classified town ways as of July 1, 1982, or thereafter, pursuant to section 53. See Title 23 M.R.S. Section 3021.1

**Traffic Calming** - Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users. MaineDOT has adopted this definition from the Institute for Transportation Engineers (ITE) for policy purposes. <https://www.maine.gov/mdot/completestreets/docs/Guidelinesfortrafficcalmingupdated9711.pdf>

**Trail**- An off-road path for pedestrians or bicyclists with footing that usually consists of soil, woodchips or another natural footing.

**Transportation Planning**- A meaningful public process of establishing a community's vision for the transportation system; developing short and long-range needs; identifying fiscal and environmental constraints and opportunities; considering alternative modes, routes, and land use patterns; and evaluation of alternatives. Sustainable transportation planning enables the transportation system to meet the needs of current generations without compromising the ability of future generations to meet their own needs.

**Travel lane**- The space in a roadway used by vehicles. Marked by lines on more highly traveled roads and unmarked on rural roads.

**Upper Maine Street**- The section of Maine Street from Bath Road south to Mere Point and Maquoit Roads.

**Wayfinding**- Signage or other directional resources to help pedestrians and bicyclists find destinations.

# Benefits of Bicycle and Pedestrian Infrastructure

Improving bicycle and pedestrian infrastructure brings many benefits to the community and individuals. Appendix V 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 daily physical activity. Traveling to school on foot or by bike is particularly important for establishing healthy habits in children, and bicycle and pedestrian activities can support healthy aging. 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.

## **Economic Benefits**

Improved bicycling and pedestrian facilities economically benefit a variety of groups. Towns with strong pedestrian and bike infrastructure attract more tourists and local residents who will spend money in town. When 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 re-

sources improve in their area, and towns save money on road repair when more individuals bike or walk rather than drive. Importantly, bicycle and pedestrian infrastructure can reduce economic exclusion by allowing individuals unable to afford a car to reach jobs, stores, and resources.

## **Environmental Benefits**

Redirecting vehicle traffic to bike and pedestrian travel reduces carbon dioxide (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.

See Appendix V for sources and definitions.



# Planning Area 1: Downtown

# Planning Area 1: Downtown



The Downtown and Growth Zone is the most densely populated and heavily used by bicyclists and pedestrians of the three planning areas referenced in this document. The Downtown planning area encompasses many different subsections that present their own planning challenges and conditions.

## Conditions

The Downtown area features dense growth, neighborhoods with sidewalks, and many destinations desirable to pedestrians and bicyclists.

Overall, the Downtown area has more bicycle and pedestrian infrastructure than the two other planning areas. The Downtown has a higher density of sidewalks, crosswalks, Rectangular Rapid Flashing Beacons (RRFBs), and signalized intersections. The Downtown also includes a bike lane on upper Maine Street and sharrows on Federal Street.



Maine Street features wide sidewalks and street trees.

Despite the greater density of facilities, stakeholder feedback indicates that there are areas to improve within the Downtown. Half of respondents to the Comprehensive Plan Update Community Survey, conducted in early 2020, found the Downtown to be unsafe for bicyclists and pedestrians. Maine Street presents challenging conditions to bicyclists and typically forces them to ride on the sidewalk. Bicyclists listed Maine Street, Pleasant Street, and Federal Street/Sills Drive/Harpswell Road as their most desired roads to improve bicycle accessibility. Pedestrian stakeholder feedback indicated desire for improvements to Maine Street's pedestrian facilities, as well as those of Federal Street/Sills Drive/Harpswell Road, Mill Street, McKeen Street, Baribeau Drive, and Union Street.

## Downtown

The Downtown area features densely developed shops, restaurants, a seasonal farmers' market, and three neighborhoods on the National Register of Historic Places (Brunswick Commercial Historic District, Federal Street Historic District, and Lincoln Street). Downtown Brunswick has a hub of public transportation at Brunswick Station with connections to the Amtrak Downeaster train, and bus services including the Portland Metro Breez, local Brunswick Explorer, and the regional Concord Coach. The Downtown area has sidewalks on the majority of streets and many crosswalks,



A diagonally raised crosswalk on Maine Street with detectable warning surfaces for the visually impaired.

some signalized or RRFBs. The Downtown region lacks bike lanes, and angled parking creates a danger to bicyclists attempting to ride on Maine Street. Union and Federal Streets serve as Downtown access ways for bicyclists and pedestrians; however, bicyclist and pedestrian stakeholders reported heavy current and desired usage of Maine Street.

## Inner Pleasant Street

Inner Pleasant Street is currently one-way eastbound from Mill Street and Stanwood Street. 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 295.

The crosswalks on Maine Street are challenging to many pedestrians because they cross four lanes of traffic. Visual obstructions to oncoming traffic at crossings may contribute to reduced pedestrian safety. Refuge locations within crossings exist on Maine Street, and these pedestrian facilities contribute to the overall pedestrian-oriented travel corridor. Some of the crosswalks on Maine Street are raised diagonally from the street surface to draw attention to the crossings. Pedestrians with disabilities face

challenges on the sidewalks. Some businesses provide makeshift ramps to allow for sidewalk access to businesses for all users; however, some buildings have raised entrances and steps raised from the public sidewalk without accessible ramps. While ramps may be provided in the rear of these businesses, wayfinding to these accessible locations is limited.

## 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 deemed inhospitable

- Brunswick's public transit hub is located in the downtown at Brunswick Station.
- The area immediately around Brunswick Station boasts pedestrian facilities with wide sidewalks, contrasting paved crosswalks, and bike racks. Pedestrian access to Brunswick Station from the designated parking areas on Union Street needs improvement, and the development of the Cedar Street Park & Ride will address some of these issues.
- Outer Pleasant Street (in addition to many areas beyond the Downtown) does not have any connections to public transit and is not serviced by public bus.
- People living in the outer Pleasant Street area must travel downtown to access public transportation, highlighting the importance of pedestrian and bicycle connections to the Downtown from outer Pleasant Street. The Brunswick Link will expand bus service in Fall 2021.

by pedestrians and bicyclist stakeholders. Businesses and associated curb cuts line the north and south sides of outer Pleasant Street. Neighborhood traffic to outer Pleasant Street comes from Mill Street, Range Road, River Road, and Westminster Avenue to the north and from Church Road, Lavallee Street, Lombard Street, Robinson Avenue, Stanwood Street, and Summer Street to the south.



Intersection of Pleasant, Stanwood, and Mill streets

Sidewalks are constructed along most of outer Pleasant Street; however, some sidewalks are narrower than the 5-foot ADA standard travel width and contain obstructions, parked cars, overgrown vegetation, seasonal snowbanks (from adjacent private landowners), utility poles, and/or 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.

It is difficult for bicyclists turning west from

Stanwood Street onto Pleasant Street to reach River Road. River Road is only reachable from Pleasant Street, which makes it generally inaccessible to bicyclists and pedestrians approaching from Stanwood Street.

### **Bowdoin College**

The Bowdoin College campus functions in many ways as its own subarea of the Downtown and features greater pedestrian and bicycle facilities than any other area in Brunswick.

Many of the crosswalks around the Bowdoin Campus feature RRFBs. Crosswalks across College Street feature raised granite tables that work as traffic calming features as well as being aesthetically pleasing.

Despite strong pedestrian infrastructure around the campus, visibility and a lack of predictability can be issues for student pedestrian and bicycle safety. Overall, Bowdoin College's pedestrian and bicycle facilities on and around its campus are a strong example for other areas in Brunswick.



Raised granite crosswalks on College Street.

### **Schools & Surrounding Neighborhoods**

Public and private K-12 schools draw multi-modal traffic from students, staff, and parents. The planning goals and implementation strategies for bicycle and pedestrian access to schools varies by school location and student age group. Most of the schools are located in dense, residential neighborhoods closer to Downtown Brunswick, and therefore attract more pedestrian and bicycle traffic. However, it is important to consider pedestrian and bicycle access for all schools.

### **Harriet Beecher Stowe**

Harriet Beecher Stowe Elementary School (HBS) is bordered by McKeen, Stanwood, and Spring Streets, which have busy car traffic. Some crosswalks create safe paths to HBS; however, neighborhoods to the west of Stanwood Street, including Hennessey Avenue, Bouchard Drive, and Country Lane 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 sidewalk and HBS from the west side of the street. A problematic crossing at Baribeau Drive and McKeen cuts off neighborhoods at the north end of Baribeau Drive from easy paths to HBS: a crosswalk on McKeen Street starts from a corner with no pedestrian protection and requires pedestrians heading east towards HBS to cross Baribeau on the southern side of McKeen.

### **Brunswick Junior High School**

Brunswick Junior High (BJHS) is located between Columbia Avenue and Barrows Street. Some streets around the schools have sidewalks including Columbia Avenue, Barrows

Street, Spring Street, Richards Drive, Shulman Drive, and Baribeau Drive north of Columbia. Some of the neighborhood streets do not have sidewalks such as Thompson Street, Boody Street, Belmont Street, Perry Drive, and MacMillan Drive.

The neighborhoods west of Stanwood Street and north of McKeen Street face the same challenges reaching BJHS as reaching HBS. Improved connections to BJHS would benefit neighborhoods to the west and north of the school. The Arrowhead Drive neighborhood could be within bikeable distance to BJHS if a path to Columbia Avenue were to provide an alternative to Woodsid Road and McKeen Street.

### **Kate Furbish Elementary School**

Kate Furbish Elementary School is located within a residential neighborhood bisected by Jordan Avenue which connects Federal Street and Bath Road. 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



Jordan Avenue looking west towards the railroad overpass.

narrower than ADA requirements and the section near Federal Street is interrupted by utility poles. The southern sidewalk narrows to an unsuitable width towards Federal Street. Due to the number of side streets south of Jordan Avenue, it would be beneficial to student safety to improve pedestrian and bicyclist infrastructure in the area.

### **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 residential neighborhoods, the Brunswick Landing Perimeter Trail provides bike and pedestrian access to the area. Seahawk Street on which the REAL School is located does not have sidewalks. Leavitt Drive to Harpswell Coastal Academy has sidewalks.

### **Brunswick High School (BHS)**

The driveway for BHS off Maquoit Road provides ample protection for bicyclists and pedestrians with a shared use path protected by street trees. Maquoit Road has a sidewalk on its eastern side north of BHS; however, the sidewalk is narrow and the lack of curb reveal reduces safety of pedestrians. The rest of Maquoit Road features gravel shoulders and intermittently striped paved shoulders. Upper Maine Street features wide, striped shoulders, and a sidewalk on the eastern side that connects to Maquoit Road 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 bicycle and pedestrian travel. Additional-

ly, Maquoit Road lacks sidewalks or wide, striped shoulders south of BHS, discouraging bicyclist and pedestrian access to BHS from the south.



Sidewalk along Maquoit Road.

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

Region 10 is located off Church Road, which has no sidewalks, and the driveway for the school 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 outer Pleasant Street. Brian Drive, Hennessy Avenue, Country Lane, and Bouchard Drive could be within walking or bicyclist distance to Region 10 if connected by trails.

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

Since both schools are located Downtown and off Union Street, the pedestrian infrastructure near the schools is substantial. However, Union Street presents challenges for pedestrians near the Town Hall due to extensive curb cuts and a lack of sidewalk in places. A temporary pedestrian safety in-

stallation in the summer of 2019 attempted to address the lack of pedestrian protection in this section through the installation of bollards.



Temporary installation

### **Safe Routes to School (SRTS)**

As stated on the MDOT 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."

SRTS in Brunswick collaborates with BB-PAC to identify and strengthen walking and bicyclist routes to local schools. SRTS in Brunswick is largely supported by local citizens and school staff and identifies safe routes, organizes bike/walk to school days,

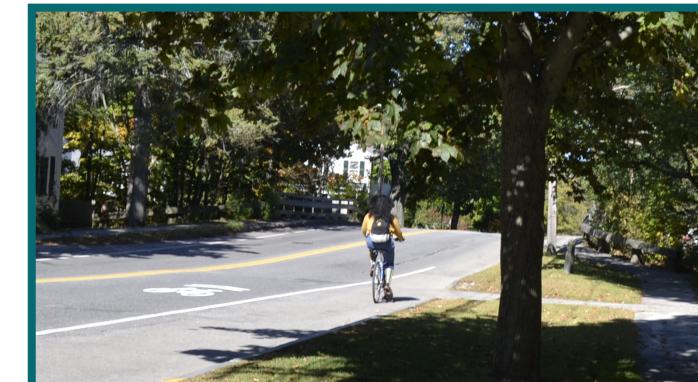
and educates children on safe bicycle and pedestrian behavior. See Appendix VII for the Results of Walk Audit by SRTS

### **Bicycle and Pedestrian Use**

Bicycle and pedestrian use in the Downtown area is high. Respondents to the bicycle survey reported that the Downtown was by far the most popular destination to reach by bike and Maine Street was the most popular utility route. Downtown destinations were also the top five most popular destinations for pedestrians. Public schools and Bowdoin were frequently mentioned destinations as well. Outer Pleasant Street sees less bicycle and pedestrian traffic; however, it did see some use as a utility bike route according to the stakeholders surveyed.

### **Existing Bicycle and Pedestrian Facilities**

The Downtown region, schools and surrounding neighborhoods, and Bowdoin College have the highest density of pedestrian and bicycle infrastructure in Brunswick. These areas and outer Pleasant Street have sidewalks in many locations; however, sidewalks sometimes do not meet ADA standards or are interrupted by numerous curb cuts. The Downtown and Bowdoin area make use of RRFBs and signalized crossings.



A bicyclist and a sharrow on Federal Street.

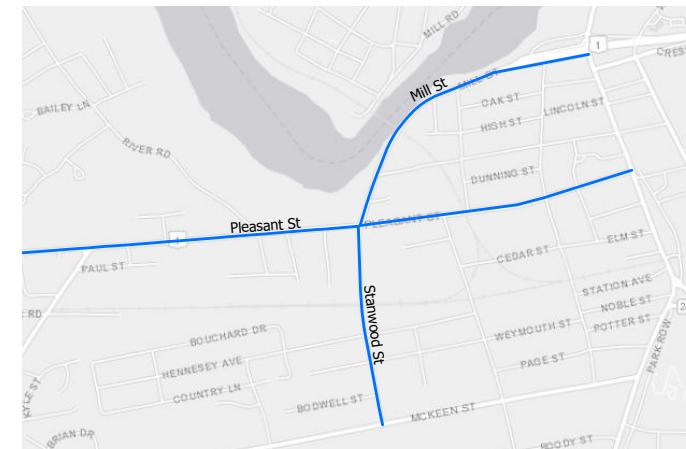
Maine Street features diagonally raised crosswalks. The only bike facilities in the Downtown region are a bike lane on upper Maine Street and sharrows on Federal Street.



A bike lane on upper Maine Street.

## Planning Area Goals: Downtown

### Problem Statement 1: Intersec- tion of Mill, Stanwood & Pleas- ant Streets



Much discussed and of particular concern is the intersection of Mill, Stanwood and Pleasant Streets (described on pages 8-9). The Maine Department of Transportation (MDOT) has proposed a number of changes to the traffic pattern there and none have been acceptable to all stakeholders. MDOT has initiated the 'Pleasant Street Corridor Study' to review the entire corridor from I-295 to Maine Street. Some stakeholders suggest there is a conflict between efficiently moving regional southbound traffic on US 1 west on Pleasant Street to the I-295 on ramp and the desire of locals to access the same corridor to the Downtown and Inner Pleasant Street businesses and services including churches, Curtis Memorial Library and the Post Office.

### Possible Actions & Strategies to Mitigate or Resolve Problem

The Brunswick Bicycle and Pedestrian Advisory Committee (BBPAC) on behalf of, and in addition to, the bicycling and pedestrian community, including wheelchair users, should stay engaged in that process and advise both MDOT and the Brunswick Town Council that non-motorized transportation be accommodated with traffic control mechanisms such as lights, traffic-calming mechanisms, cross walks, and improved sidewalks with the affirmation that bicycles as well as pedestrians and wheelchair users have the right to use sidewalks on the south side of Pleasant Street, west of Stanwood Street.

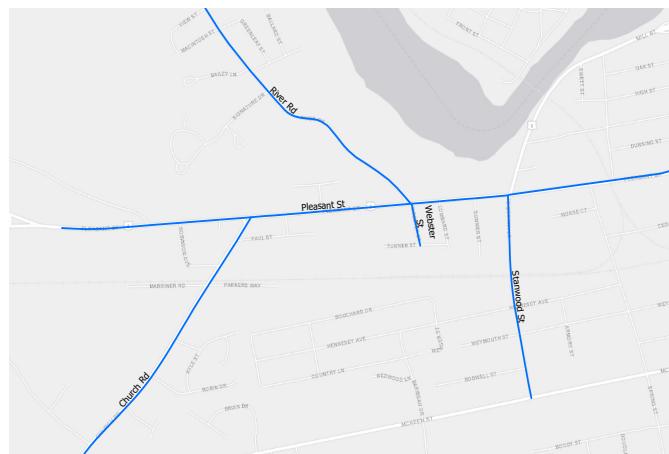
### Measurable Goals/ Intended Outcomes

Motorized traffic will be controlled so that pedestrians, bicyclists and other non-motorized users of the intersection will have a way to cross Pleasant Street or Mill Street without having to compete with cars and trucks, even if they have to wait several minutes for traffic signals or other traffic control mechanisms to provide them with the right-of-way.

### Timeline for Actions

A permanent solution may take as long as 5 years. However, one or more of the strategies suggested could be tried in the near-term.

## Problem Statement 2: Outer Pleasant Street Access



The Pleasant Street corridor has a lack of bicycle and pedestrian infrastructure, creating dangerous situations for non-motorized users of the corridor.

### Possible Actions & Strategies to Mitigate or Resolve Problem

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. Paper streets are corridors where the Town of Brunswick has rights to establish a travel way. These are often depicted on the tax maps. In some areas, however, paper streets are only referenced by a written description. All of the written descriptions of paper streets are on file at the Department of Planning and Development. 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. Investigate the use of "paper streets", ROWs, and/or easements to provide an alternative path for bicyclists and pedestrians off

Pleasant Street.

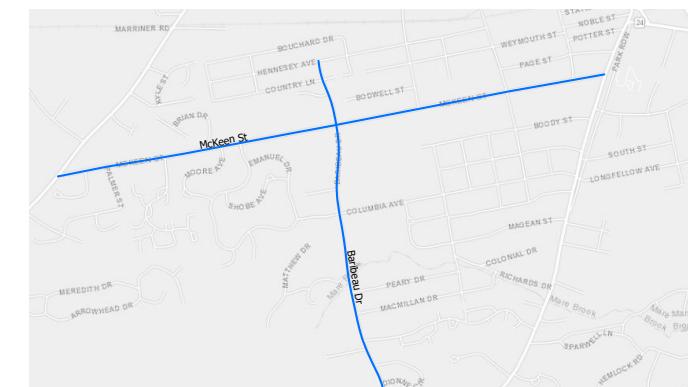
Reducing curb cuts and ensuring that private property or winter snow piles do not interrupt the outer Pleasant Street sidewalks would make them safer and more comfortable for all pedestrians. Widening sidewalks should accommodate for ADA-required width even where sidewalks are interrupted by telephone poles. Investigate feasibility of sidewalk widening and closure of curb cuts along outer Pleasant Street.

### Measurable Goals/ Intended Outcomes

There is increased use of the Pleasant Street corridor by bicyclists and pedestrians to reach jobs and shops and commute to other destinations. New bicycle and pedestrian users in the area are able to access destinations previously accessible only by car for them.

## Problem Statement 3: Baribeau & McKeen Crossing

Stakeholders have identified the intersection of McKeen Street at Baribeau Drive as challenging for students traveling to BJHS and HBS. Traffic on McKeen Street travels fast and does not always stop for students crossing at Baribeau Drive.



### Possible Actions & Strategies to Mitigate or Resolve Problem

Two strategies were identified and tested during the 2019-20 school year at the Baribeau and McKeen intersection:

- Stationing Brunswick Police near the intersection. People intuitively slow down when they see a police car
- Installing, temporarily, a speed reader to let people know how fast they are going the posted speed limit. These were effective but not permanent solutions.

Two strategies that could be implemented to improve the intersection:

- Posting a crossing guard to stop traffic and allow pedestrians and bicyclists to cross safely, similar to those at McKeen and Stanwood and McKeen at Spring Street
- Upgrade Baribeau Drive crossing to meet MDOT standards and review possibility of installing a RRFB

### Measurable Goals/Intended Outcomes

The intended outcome is to reduce or eliminate instances of motorists exceeding the posted speed limit of 25mph on McKeen Street east of Baribeau Drive and instances of motorists failing to yield to pedestrians attempting to use the crosswalk at Baribeau Drive. The success of each of these strategies should be evaluated by parents and students for local context (e.g.: has traffic slowed to the speed limit? Do motorists on McKeen Street stop at the crosswalk if pedestrians are present?) and with speed data analysis provided by Police Department radar findings or remote

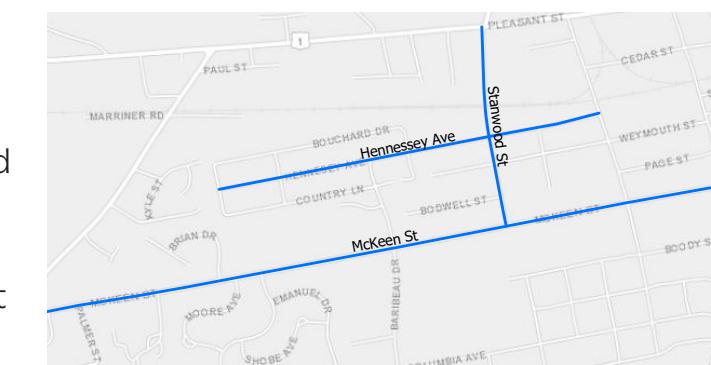
speed counters.

### Timeline for Actions

Short Term: Posting a crossing guard at the intersection should be done as soon as this school year.

Medium Term: Installing a RRFB will depend on funding being available through grants or the Town budget.

## Problem Statement 4: Stanwood Street Pedestrian Crossing to HBS



Stakeholders have expressed concern for students and others approaching Harriet Beecher Stowe Elementary School from the neighborhood west of Stanwood Street. There are no crosswalks on Stanwood Street south of the existing crosswalk at Hennessy Avenue.

### Possible Actions/ Strategies to Mitigate or Resolve Problem

The most effective, but long-range, strategy to address this issue would be to install a sidewalk on the west side of Stanwood Street. This should be added to the Town's Capital Improvement Program (CIP). In the near term, adding a crosswalk at the

intersection of Weymouth and Stanwood or McKeen and Stanwood and encouraging pedestrians to collect at either intersection. Collecting pedestrians at a single crossing could alleviate the number of times a motor vehicle would need to stop.

#### **Measurable Goals/ Intended Outcomes**

The success of each of these strategies should be evaluated by subjective responses of parents and students, e.g.: are pedestrians more easily and more safely able to cross from their neighborhood to Harriet Beecher Stowe School?

#### **Timeline for Actions**

Medium Term: a crosswalk could be striped for the current school year or in the mid-term time frame if necessary.

Long Term: installation of a sidewalk is a longer term strategy but should be included in the Town's CIP.

### **Problem Statement 5: Neighborhood Bicycle and Pedestrian Interconnectivity**



Stakeholders observed some neighborhoods that could be within biking or walking distance to nearby schools are closed off from access by disconnected streets (i.e., no connecting street and/or path between neighborhoods).

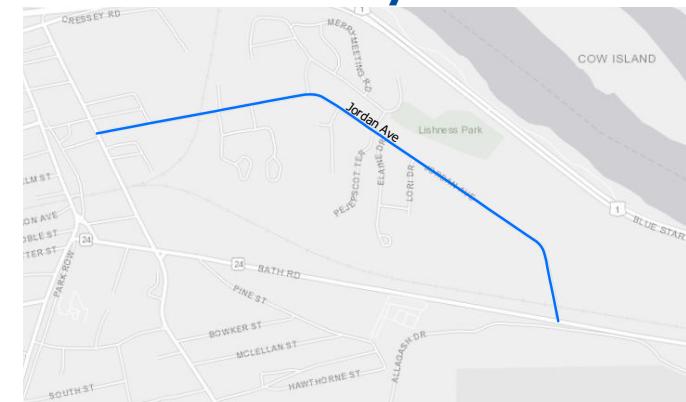
#### **Possible Actions/ Strategies to Mitigate or Resolve Problem**

Paper streets and ROWs and/or easements 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. Investigate the use of paper streets and ROWs to create connections between isolated neighborhoods and schools across Brunswick.

#### **Measurable Goals/ Intended Outcomes**

Increase in bicycle and pedestrian traffic commuting to schools from newly connected neighborhoods.

### **Problem Statement 6: Jordan Avenue Geometry**



Jordan Avenue is narrow and does not have any bicycle facilities. Consideration should be taken for how best to accommodate

the new pedestrian and bike usage that will arise from the opening of the Kate Furbish Elementary School.

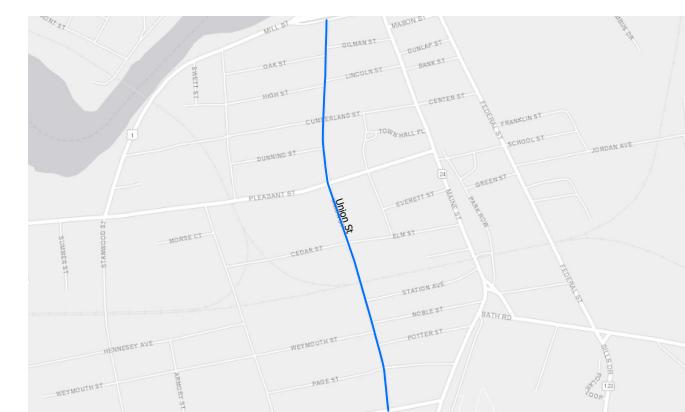
#### **Possible Actions/ Strategies to Mitigate or Resolve Problem**

Jordan Avenue is 23 to 24 feet wide, leaving little room for bicycle and pedestrian facilities. While striping wider shoulders or painting sharrows could increase bicycle safety and comfort on a wider road, staff advise further evaluation to serve all users within the right-of-way. Evaluate the feasibility of sharrows within the road corridor. Also see page 29, Crosswalk to Jordan Avenue on Bath Road.

#### **Measurable Goals/ Intended Outcomes**

Kate Furbish Elementary School is safely accessed by pedestrian and bicyclist students, parents and teachers.

### **Problem Statement 7: Union Street, Noble Street, and Tenney Way**



No sidewalks exist on the north side of Union Street from Noble Street to Tenney Way. An existing painted walkway at that location serves residents moving to and

from area neighborhoods. In addition to local users, transit customers on Station Avenue routinely use the walkway to long term parking facilities. A pilot study to increase the conspicuity of the walkway and better define existing driveway entrances to businesses on Union Street implemented temporary bollards (with landowner permission). While the pilot project was well received by the public, these temporary measures require routine maintenance.

Crosswalks are striped at various locations on Union Street for safe movement across Union Street. Unsafe conditions are apparent for pedestrian access to the west side of Union Street where the sidewalk terminates at Noble Street. Nevertheless, pedestrians can routinely be observed walking across that section of Union Street.

Union Street is a preferred alternative bicycle route to Maine Street. New pedestrian facilities must not create conflicts with bicyclists.

#### **Possible Actions/ Strategies to Mitigate or Resolve Problem**

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

#### **Measurable Goals/ Intended Outcomes**

Pedestrians and bicyclist stakeholders report greater safety on Union Street and there is an increase in use.

#### **Timeline for Actions**

Timeline of projects depend on the scale of the identified project.

## Other Considerations for the Downtown Area

**(1)** Pedestrian crossing Mason Street/Cressey Road from Federal Street to Water Street:

Traffic coming from Maine Street does not have to stop; crosswalks are long and without pedestrian refuge

**(2)** Fort Andross:

Coming and going via bicycle is unsafe. Review bike lane feasibility at the time of Route 201 / 24B bridge construction. Note: Brunswick has endorsed Route 1 deck construction without widening Maine Street.

**(3)** Downtown Maine Street:

Bicyclist and pedestrian stakeholders desire access to the Downtown area along the Maine Street corridor. Stakeholders express a desire for improved bicycle and pedestrian facilities to access restaurants, shops, and public spaces on Maine Street. Bicyclists and pedestrians currently share the sidewalks.

Current on-street parking and travel lanes serving regional vehicle traffic limit opportunities for dedicated bike lanes on lower Maine Street. Upper Maine Street currently has a southbound dedicated bike lane, and stakeholders desire a connection to this bike lane from the lower Maine Street area.

**(4)** Sills Drive and Bath Road:

Look for opportunities to connect fragmented pedestrian facilities in this area, for example, connecting Pine Street and Sills Drive.

**(5)** Longfellow Avenue, Park Row, and Maine Street:

Evaluate pedestrian and bicycle crossings at this intersection taking into account the high volume of student travel. Longfellow Avenue is wide and not striped. Striping shoulders and narrowing the travel lane could improve bicycle transit on the street.

**(6)** Access to Topsham:

Stakeholders highlighted the importance of connections to Topsham. The Androscoggin Swinging Bridge, on the National Register of Historic Places, and the Route 201 bridge currently provide bicycle and pedestrian access to Topsham. Support the efforts of the Department of Parks and Recreation for bicycle and pedestrian access to the Androscoggin Swinging Bridge and Topsham.



Map of River Walk from Androscoggin River Walk

Support the efforts of the River Walk Advisory Committee. The River Walk provides a scenic pedestrian route along the Androscoggin River to points in downtown Brunswick and Topsham. A short journey east from Maine Street to Water Street in Brunswick turns into the paved off-road multiuse Androscoggin River Trail that runs between downtown Brunswick neighborhoods,

Cooks Corner, and Topsham.

**(7)** Downtown Wayfinding:

Evaluate current Downtown wayfinding and look to improve signage for visitors to find points of interest, historical sites, and monuments in the Downtown.

**(8)** Safe Routes to School Maps:

SRTS has identified the preferred paths to various Brunswick schools. A wayfinding map for each school published on the Town website could provide better knowledge of these routes and encourage families to walk or bike to school more often.

**(9)** Support the efforts of the Brunswick Downtown Association (BDA), the Master Plan Implementation Committee (MPIC), the Village Review Board (VRB), MDOT, and the Planning Board to maintain and enhance the pedestrian-friendliness of the Maine Street and Lower Pleasant Street Area

**(11)** 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

**(12)** Make all sidewalks and crosswalks accessible to persons with disabilities.

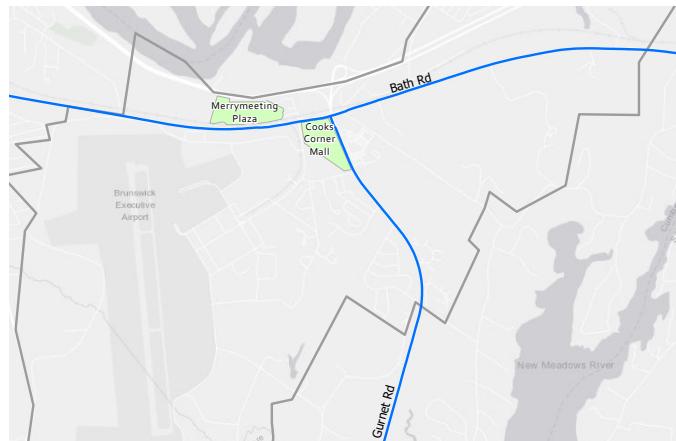


## Planning Area 2: Cook's Corner & Brunswick Landing

# Cook's Corner & Brunswick Landing



Cook's Corner and Brunswick Landing encompass the area within the Growth Boundary beginning at the western border of Brunswick Landing. While Brunswick Landing and Cook's Corner can feel like two different entities, the Bicycle and Pedestrian Improvement Plan aims to increase connections and integration between the two.



## Conditions

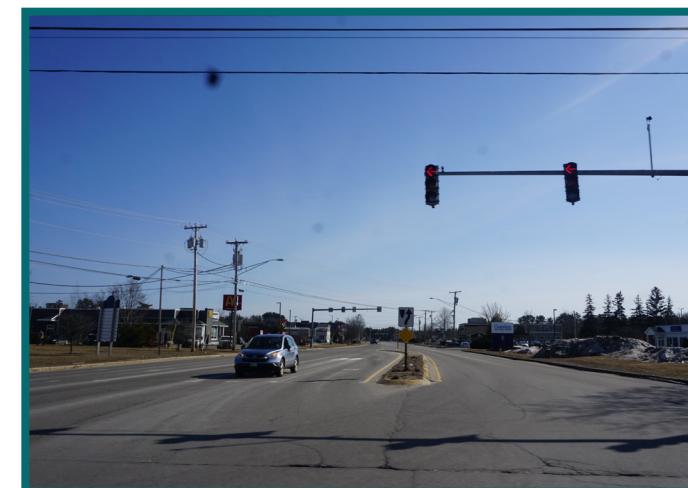
Cook's Corner is a commercial district with roads that have high traffic volumes and many businesses. Cook's Corner lacks bicycle and pedestrian infrastructure in most places. Brunswick Landing began as the former Brunswick Naval Air Station (BNAS) in the 1950s. BNAS was entirely separated from Cook's Corner, but Brunswick Landing is becoming more integrated with Cook's Corner and Brunswick. New roads and access points have increased connectivity to Brunswick Landing which has more complete bicycle and pedestrian infrastructure than the rest

of Cook's Corner. Cook's Corner also connects to roads within the rural area; notably, Thomas Point Road, Woodward Point Road, Princes Point Road.

### Cook's Corner: Bath Road, Gurnet Road, and Shopping Malls

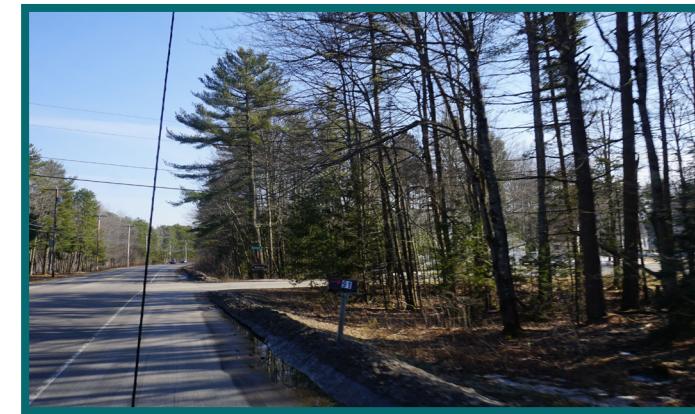
The Cook's Corner area includes two main roads, Bath Road and Gurnet Road, that experience heavy traffic volumes. Bath Road and Gurnet Road meet at a large intersection that also serves traffic exiting Route 1. Along the Bath Road and the Gurnet Road there are many curb cuts and businesses. Cook's Corner also includes two major shopping centers, Merrymeeting Plaza and the Cook's Corner Mall.

Bicycle and pedestrian access to businesses along Bath Road is limited by vehicle traffic. Some sidewalk sections have been constructed along the Bath Road right-of-way. Bath Road has no sidewalks on the north



Bath Road intersection with the entrance to Merrymeeting Plaza.

side of the roadway. Bath Road has a sidewalk on the south side of the roadway beginning between the new Irving Station and Bar Harbor Trust and extending to Admiral Fitch Ave. The sidewalk from Bar Harbor Trust to Dunkin Donuts is in good condition and 5 feet wide. From Dunkin Donuts to Admiral Fitch, the surface is broken and the width near the utility poles is reduced to 3.5 to 4 feet, narrower than the 5-foot wide minimum travel width for ADA compliance.



Shoulder on Gurnet and the entrance to Wildwood.

There is a crosswalk at Admiral Fitch Avenue; however, it lacks detectable warning surfaces. The sidewalk continues on the east side of Admiral Fitch to the Cook's Corner mall entrance. This portion of sidewalk is broken and is less than 5 feet in width where utility poles are placed. There is no sidewalk between the Cook's Corner mall entrance and Gurnet Road. Continuing east of Gurnet Road, there is new sidewalk in good condition and 5-feet wide on the south side of Bath Road beginning at Johnson's Sporting Goods and continuing east to the Lowe's entrance.

Bath Road is a signed bicycle route with wide shoulders from Sills Road to Old Bath Road. However, there are no designated bicycle lanes or sharrows, and traffic travels at

approximately 40 miles per hour. Curb cuts also increase dangers for cyclists.

The Cook's Corner Mall and Merrymeeting Plaza both lack bicycle and pedestrian infrastructure to connect to Bath Road. The new Hannaford Supermarket at the Cook's Corner Mall will provide greater bicycle and pedestrian access from the Brunswick Landing, but the rest of the mall's access ways provide no protection for bicyclists or pedestrians.

Gurnet Road is a regional connection route to Harpswell, which is desired by bicycle and pedestrian stakeholders. The road has wide shoulders closer to Brunswick Landing, but the shoulders do not provide adequate protection for bicyclists and pedestrians.

## Public Transit

The Brunswick Link (formerly Brunswick Explorer) bus serves Cook's Corner with route stops at Merrymeeting Plaza, the Cook's Corner Mall, Walmart, Midcoast Hospital, Sweetser Mental Health Services, Maplewood Estates, and Brunswick Landing. The bus has the capacity to transport bicycles.

The bus stops in Cook's Corner currently do not connect a system of pedestrian and bicycle infrastructure, and improvements to Cook's Corner's bicycle and pedestrian transit system should work to connect public transit and bicycle and pedestrian facilities to maximize efficiency. The Brunswick Link will expand bus service in Fall 2021.

Gurnet Road serves as the Wildwood neighborhood's only connection to Cook's Corner and Brunswick Landing. Pedestrians and bicyclists from Wildwood must use the shoulder of Gurnet Road to reach Antietam Street and enter Brunswick Landing. Residents from the neighborhood report that cars often use the shoulder as a turning lane, risking the safety of pedestrians and bicyclists and causing the neighborhood to be cut off from Brunswick Landing.

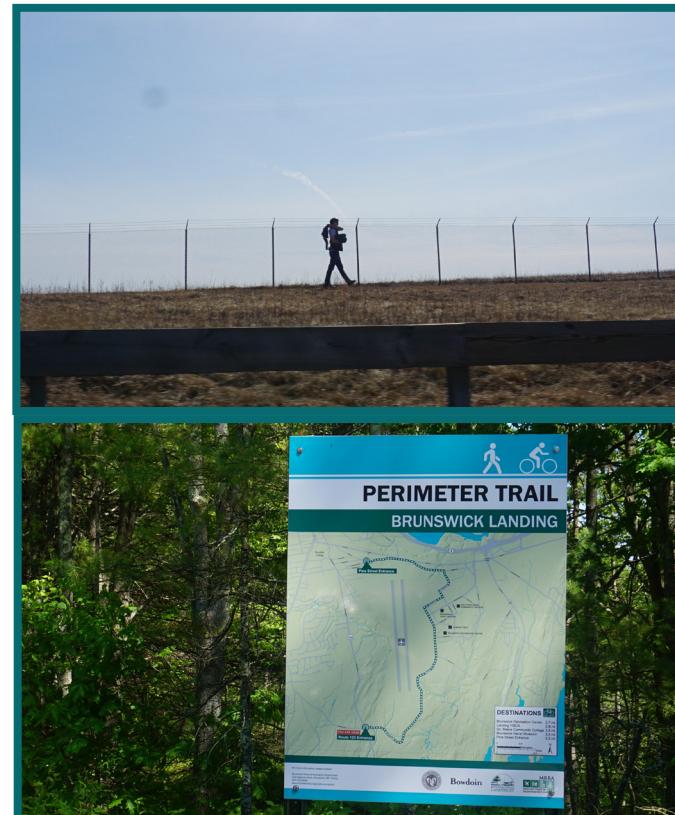
### **Brunswick Landing**

The 2,100-acre Brunswick Landing is continuously undergoing reuse and redevelopment as parcels of land transition from the Federal Government to the Midcoast Regional Redevelopment Authority (MRRA) and then on to public and private entities. Unlike most public streets and sidewalks in Brunswick, the travel corridors at Brunswick Landing are primarily owned and maintained by MRRA. Brunswick Landing hosts new and renovated Navy housing, offices, industrial and manufacturing facilities, schools, restaurants, public conservation land, and recreation areas.

Brunswick Landing joins Cook's Corner at Admiral Fitch Drive and the newly built Landing Drive. Landing Drive between Brunswick Landing and Gurnet Road provides bike lanes in both directions, sidewalks protected by street trees, and detectable warning surfaces. Landing Drive's bicycle and pedestrian facilities connect to the Brunswick Landing Perimeter Trail; however, no bicycle and pedestrian infrastructure exists on Gurnet Road, fragmenting the transit system.

Brunswick Landing is made up of interconnected streets, most of which have sidewalks. Admiral Fitch Drive has wide shoulders providing room for bicyclists. Admiral Fitch Drive also has a turning lane for bicyclists at the intersection with Landing Drive. The presence of many large employers and two popular food and beverage establishments on Seahawk Drive highlights the importance of expanding and maintaining pedestrian and bicycle facilities on Brunswick Landing.

### **Brunswick Landing Perimeter Trail**



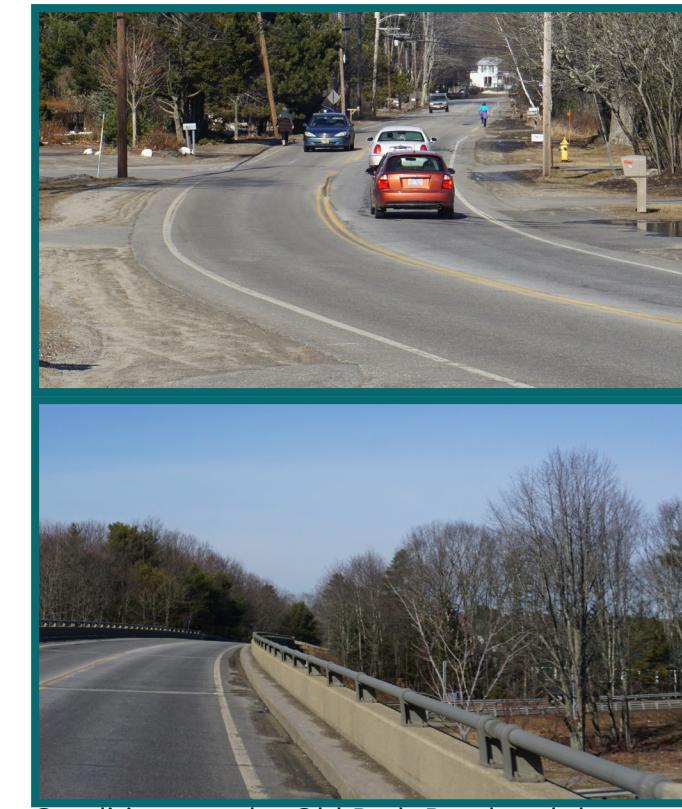
A sign for the Perimeter Trail and a pedestrian walking on the off-road section of the trail.

The Brunswick Landing Perimeter Trail provides an alternative access route for bicyclists and pedestrians to Brunswick Landing. The Perimeter Trail circumnavigates Brunswick Landing and includes on-road and paved off-road portions. The trail begins

as an off-road trail at the end of Pine Street and parallels the Bath Road along the end of the runway until it meets Allagash Drive and becomes an on-road trail. The BNAS Reuse Master Plan identifies the goal of creating an entirely off-road Perimeter Trail. There is desire from bicyclist and pedestrian stakeholders to speed up the development of the off-road sections of the Perimeter Trail. This bicycle path is designated a safe bicycle route on Brunswick Landing by the BBPAC.

### **Old Bath Road**

Old Bath Road meets the Bath Road at an intersection with the entrance to Lowe's and Walmart. Old Bath Road is largely residential and stretches to West Bath, split between the rural roads and Cook's Corner planning areas. Two major mobile home parks are located off Old Bath Road, Maplewood Manor, and Baybridge Estates.



Conditions on the Old Bath Road and the bridge over Route 1.

Old Bath Road provides access to the eastern end of the Androscoggin River Bike Path which ends at Grover Lane. Old Bath road lacks any bicycle and pedestrian facilities and presents numerous hazards to these groups. The shoulders on the Bath Road are striped but often narrow. The rough condition of the road surface adds an additional challenge for bicyclists. The bridge over Route 1 has no shoulder and can only accommodate two lanes of travel, providing no space for bicyclists and pedestrians. The low guardrail on the bridge reduces security of pedestrians and bicyclists.

Bicycle and pedestrian facilities on Old Bath Road have implications for equity in Brunswick due to the high number of low-income households in the area. Low-income households are more likely to lack a personal vehicle and rely on other, affordable forms of transportation to reach their destinations. Improving bicycle and pedestrian facilities on Old Bath Road would connect households to jobs and shops in Cook's Corner.

### **Open Space**

Brunswick Landing includes a significant amount of conservation land and recreational green space. Brunswick Landing includes Neptune Woods, a system of mountain biking trails on its eastern edge, and the Kate Furbish Preserve and Mere Creek Golf Course on the southern edge.

Connection to these popular recreation destinations from other parts of town relies on bicycle and pedestrian infrastructure in Cook's Corner and the Brunswick Landing.

## Bicycle and Pedestrian Use

Bicycle and pedestrian use is more frequent on Brunswick Landing than in Cook's Corner as the Perimeter Trail and the open space attracts bicyclists and pedestrians. Cook's Corner and its roads do not attract pedestrians or bicyclists for recreation or convenience; however, pedestrians and cyclists who wish to or must reach certain destinations without a car do navigate the Cook's Corner area. Notably, asylum seekers living on Brunswick Landing starting in 2019 did not have access to vehicles when they arrived in Maine and had to rely on public transit or walking to reach grocery stores and any other destination.



Walking path along Admiral Fitch Way.

## Existing Bicycle and Pedestrian Facilities

Brunswick Landing offers bicycle and pedestrian facilities including sidewalks on the major streets, the off-road sections of the Perimeter Trail, and new, striped bike lanes in both directions on Landing Drive. Admiral Fitch Avenue has a bicycle turning lane onto Landing Drive and an off-road paved path set back from the road on its eastern side.

Cook's Corner lacks significant bicycle and pedestrian infrastructure. There are some sidewalks, but they are fragmented and

often interrupted by curb cuts. Sidewalks that do exist do not provide much horizontal separation from traveling cars. Many destinations are reachable only by transit through parking lots. Cook's Corner also lacks any bicycle infrastructure. Narrow shoulders and frequent curb cuts make the densely developed sections of Cook's Corner hazardous to bicyclists.



Mothers and strollers crossing the Regal Cinema parking lot.

# Planning Area Goals: Cook's Corner & Brunswick Landing

## Problem Statement 1: Gurnet Road

Bicyclist stakeholders report riding on the roads in the Thomas Point Beach area to the south and east of Cook's Corner; however, the area presents challenges to safe bicycle access.

Motorized vehicles regularly travel at 45-50 mph in this area, making it difficult for bicyclists to complete a left turn from Gurnet Road onto Board Road.

Gurnet Road between Bath Road and Landing Drive has a narrow shoulder without a 3-foot margin for bike riders. This shoulder widens on the west side starting at Antietam Street (Mariner's Landing) but the east side has no shoulder at all between the U-Haul business and Board Road, forcing bike riders to ride in the travel lane.

## Possible Actions/ Strategies to Mitigate or Resolve Problem:

- Restriping to make uniform bike lanes/ shoulders on both sides of Gurnet Road
- Install signage alerting drivers to the presence of bicycles
- Create shared lane markings along the route between Bath Road and Board Road
- Reduce width of lane to provide a wider shoulder for bicyclists

## Measurable Goals/ Intended Outcomes

- Increased presence of bicycle riders on Gurnet Road near Cook's Corner

## Timeline for Actions

- Short term: painting projects, install sharrows
- Medium term: install signage, evaluate feasibility of reducing speed limit
- Long term: reduce lane width

## Problem Statement 2: Neighborhood Connections to Cook's Corner

There are several residential neighborhoods within walking and bicycling distance of the two shopping plazas at Cook's Corner: Perryman Drive, Mariner's Landing, Coastal Estates, and Wildwood. There are additional neighborhoods within Brunswick Landing. However, under current conditions, it is challenging to be a pedestrian or bicyclist in this car-centered area.

There are no sidewalks along Perryman Drive, but there is a crosswalk on Gurnet at the end of Landing Drive. Gurnet Road lacks sidewalks on the west side of the street. A sidewalk on the east side of the street extends from Bath Road to just before Perryman Drive.

Residents of Mariner's Landing can use pedestrian and bicyclist infrastructure on Landing Drive to access the Cook's Corner mall from the southeast corner of the shopping plaza. An approximately 20-foot sidewalk connects Landing Drive to the parking lot of the shopping plaza, but the parking lot lacks bicycle and pedestrian infrastructure to complete the connection to the stores.

Residents of Brunswick Landing who wish to access Merrymeeting Plaza as a bicyclist or pedestrian could avoid having to walk along the Bath Road by using Allagash Drive; however, Allagash Drive lacks a shoulder or other infrastructure. The Merrymeeting Plaza parking lot has one sidewalk for pedestrian access to the building, but there are no marked bike lanes or bike racks.

Wildwood and Coastal Estates have no pedestrian or bicycle infrastructure to connect them to Cook's Corner businesses despite the neighborhoods' relative proximity.

#### **Possible Actions/ Strategies to Mitigate or Resolve Problem:**

- Develop a right-of-way or multi-use trail between Wildwood and Mariner's Landing
- Complete sidewalk connections on both sides of Gurnet Road between Landing Drive and Bath Road
- Identify pedestrian and bicycle routes with striping in the Cook's Corner mall parking lot

#### **Measurable Goals/ Intended Outcomes**

- Increased presence of pedestrian and bicyclists (including children) between nearby neighborhoods and the Cook's Corner shop-

ping area.

#### **Timeline for Actions**

- Short Term: paint projects
- Medium Term: developing trail connections between neighborhoods and crosswalks
- Long Term: sidewalk construction

### **Problem Statement 3: Bath Road**

Bath Road has wide shoulders on both the north and south sides for walking and bike riding from Federal Street east to the entrance of the Irving Station across from Merrymeeting Plaza. At that point, the shoulder becomes narrow. While there is a sidewalk for pedestrians, bicycle infrastructure discontinues at that point. Three lanes of vehicle traffic without a bike lane make traveling from this area to Old Bath Road difficult. A number of cyclists have expressed frustration with the lack of bicycle infrastructure in this area which hampers their ability to commute to work, shop and access recreational areas and facilities.

#### **Possible Actions/ Strategies to Mitigate or Resolve Problem:**

- Striping shoulders and sharrows
- Install bicycle and pedestrian awareness signage
- Investigate feasibility of reducing lane width
- Investigate feasibility of implementing a

"road diet"

#### **Measurable Goals/ Intended Outcomes**

- Increased presence of bicyclists between Downtown Brunswick and Cook's Corner

#### **Timeline for Actions**

- Short term: paint projects
- Medium/long term: reduce lane width, install signage, promote traffic calming measures

### **Other Areas of Note and Goals for Cook's Corner and Brunswick Landing**

**(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, and Gurnet Road

**(3)** Improve access to Brunswick Landing and Cook's 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

**(5)** Educate developers on the Cook's Corner Design Standards to encourage transit-oriented boulevards for improved bicycle and pedestrian access on Bath Road for new and redevelopment projects

**(6)** Evaluate the potential for off-street or sheltered bicycle and pedestrian access

from Harpswell Road and Sills Drive to Pine Street, Allagash Drive, Katahdin Drive, and Admiral Fitch Avenue.

**(7)** Evaluate the potential for bicycle and pedestrian access from Pine Street and Allagash Drive to Jordan Avenue

**(8)** Evaluate feasibility of public access through the locked Purinton Road gate.

**(9)** Support redevelopment of off-road fitness trail systems and new connections for public use. 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 equipment along the trail is not in good condition. Development of the trail and improved transit connections could make it a valuable resource to the community.



## Planning Area 3: Rural Roads & Trails

# Rural Roads & Trails



The Rural Roads and Trails planning area encompasses the areas of Brunswick outside the Growth Boundary. Rural roads with low traffic volumes, busy regional arteries, and off-road trails make up this area. The quieter country roads provide enjoyable scenery and plentiful routes for bicyclists 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 roads and bike paths in southern parts of Brunswick.

## Conditions

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 are listed on the National Register of Historic Places, 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



Dog walker on the Highland Road.

off-street access ways, they are frequently used by bicycle riders for sport and regional travel. Bicycle and pedestrian facilities on Brunswick's rural roads are, at best, limited to wide, striped shoulders. Rough pavement and narrow shoulders are the most frequent challenges for pedestrians and bicyclists on Brunswick's rural roads.

Many of Brunswick's most popular and scenic rural roads are only lightly traveled by car traffic, allowing pedestrians and bicyclists to use them fairly comfortably without pedestrian or bicycle infrastructure. Comments from residents indicate automobile traffic tends to move faster than the posted speed limit on Brunswick's low volume rural roads; however, the rural roads remain popular biking and pedestrian destinations for local residents and visitors from neighboring towns.

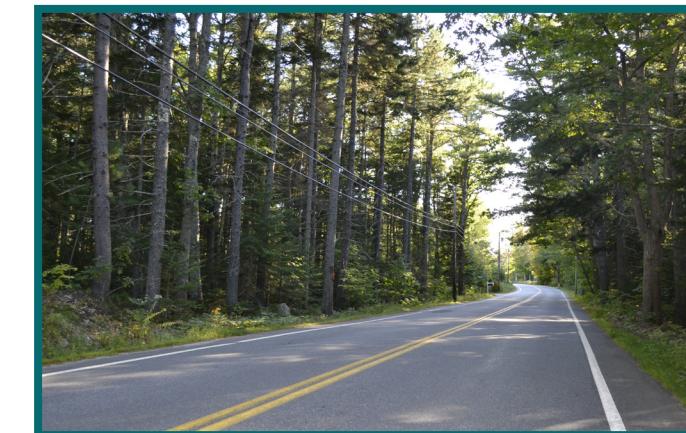
The East Coast Greenway (ECG) makes use of Brunswick's rural roads and gives cyclists the option to travel on inland or coastal routes. The ECG is marked by small signs along the route, but other wayfinding on Brunswick's rural roads is lacking. For example, no signage points to the popular swimming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

## Southern Brunswick

Southern Brunswick encompasses the popular bicycling and pedestrian roads of the Pennellville area, Mere Point Road, Maquoit

Road, Rossmore Road, Maquoit Road, Woodside Road, Bunganuc Road, Casco Road, and the Highland Road.

Mere Point Road, a particularly popular route, terminates at the public Mere Point Boat Launch which is striped to accommodate cyclists and pedestrians and has public restrooms. Mere Point Road has striped and paved shoulders. The conditions are generally good for bicyclists and pedestrians. Challenges are created in sections by poor asphalt conditions and occasional narrow shoulders which often force cyclists further into the roadway.



Mere Point Road.

The other popular bicycling roads that make up this area of Brunswick have earned their reputation as good bicycling routes due to natural scenery and low traffic. Most of these roads do not have striped shoulders, but the low traffic still allows for good bicyclist and pedestrian conditions. Narrow stretches in the roads and/or blind hills can reduce bicycle and pedestrian visibility, but these areas are few and short in distance.

## Pleasant Hill Road

Pleasant Hill Road connects Maine Street to the town of Freeport and is a highly popu-

lar bicycling route. The stakeholder surveys revealed that Pleasant Hill Road was the most popular recreational bicycling route in Brunswick and is also high on the lists of utility routes and wish list routes. Crystal Spring Farm and the Saturday Brunswick Topsham Land Trust Farmers' Market are located on the Pleasant Hill Road, increasing bicycle and pedestrian traffic.

The Pleasant Hill Road can be inhospitable to cyclists and pedestrians despite its use by



Pleasant Hill Road approaching the location of the Farmers' Market.

both groups, and the road tops the bicycle route wish list. Cars travel quickly along the straight road into town, and striped shoulders are often narrow with little protection from cars. During the Farmers' Market, parked cars along Pleasant Hill Road add an additional obstacle for bicyclists and pedestrians.

## Western Brunswick

Western Brunswick includes the roads and neighborhoods west of Route 1 and beyond the Growth Boundary. Durham Road and the outer portion of River Road are the major routes in this area. Western Brunswick pres-

ents challenges for bicyclists and pedestrians because it is often difficult to reach. Pleasant Street separates River Road from the rest of Brunswick, and Route 1 similarly separates Durham Road. River Road has narrow shoulders that bicyclists and pedestrians report as being a hazard and deterrent from activity. Durham Road presents similar problems for bicyclists and pedestrians, and stakeholders report that the speed of traffic also creates inhospitable bicycle and pedestrian conditions.

### **Eastern Brunswick**

Eastern Brunswick includes the peninsulas east of the Pennellville area, Thomas Point Road, and outer Old Bath Road. Eastern Brunswick's rural roads include region connectivity points to Harpswell via Harpswell Road and Gurnet Road and to Bath via Old Bath Road, Bath Road, and Thomas Point Road.

Bicyclists and pedestrians do not use eastern Brunswick's roads as heavily as roads in southern sections of town. The roads present access challenges to bicyclists and pedestrians because Cook's Corner separates the area from other sections of Brunswick. Old Bath Road has narrow shoulders and rough pavement. Improved bicycle and pedestrian facilities on outer Old Bath Road would allow better access to the mobile home park, Bay Bridge Estates.

Gurnet Road and Harpswell Road provide desired connectivity to the neighboring town of Harpswell; however, both roads present challenges to bicyclists and pedestrians. Harpswell Road lacks shoulders south of Middle Bay Road and the high speed of

traffic makes it difficult for bicyclists and pedestrians to use the road. Gurnet Road has wider shoulders; however, the rate of speed of car traffic may make the road a less desirable regional connection for bicyclists and pedestrians.



Old Bath Road.

Overall, eastern Brunswick roads present opportunities to improve regional access for bicyclists and pedestrians.

### **Open Space**

The Rural Roads and Trails planning area includes trail systems and open space. These include the new Captain William Fitzgerald Preserve off Old Bath Road, Woodward Point Preserve, the Crystal Spring Farm trail system, the Maquoit Bay Conservation Land, Chase Preserve off Bunganuc Road, and Cox Pinacle off Hacker Road. These public spaces are destinations for bicyclists and pedestrians, and connections to them should accommodate for the stakeholder access from other parts of town. Cox Pinacle, Fitzgerald Preserve, and Woodward Point are all more difficult to reach as a bicyclist or pedestrian, and the location of these open spaces on roads with poor bicycle and pedestrian access highlights the need for improvements on Durham Road, Old Bath Road, and off Gurnet Road.

### **Bicycle and Pedestrian Use**

Bicycle and pedestrian use in the Rural Roads and Trails planning area varies. Southern Brunswick roads and Pleasant Hill Road attract many recreational users and Pleasant Hill Road experiences utility traffic as well. These roads see use by people of all ages and abilities, from serious road bicyclists and runners to casual touring cyclists and dog walkers.

The roads of western Brunswick and eastern Brunswick attract some recreation use; however, they are not nearly as popular as the southern roads, particularly with visitors or individuals from other areas of Brunswick. Old Bath Road, with the two large mobile home parks, experiences more utility bicycle and pedestrian use.

### **Existing Bicycle and Pedestrian Facilities**

Rural Brunswick roads only offer one example of pedestrian and bicycle infrastructure: the Mere Point Boat Launch features a shared use lane on its driveway. Existing bicycle and pedestrian facilities on rural roads are, at best, wide, striped shoulders. Despite a lack of infrastructure, many of Brunswick's rural roads are welcoming to bicyclists and pedestrians due to low traffic volumes, wide



Bicyclists and vehicles on the Rossmore Road.



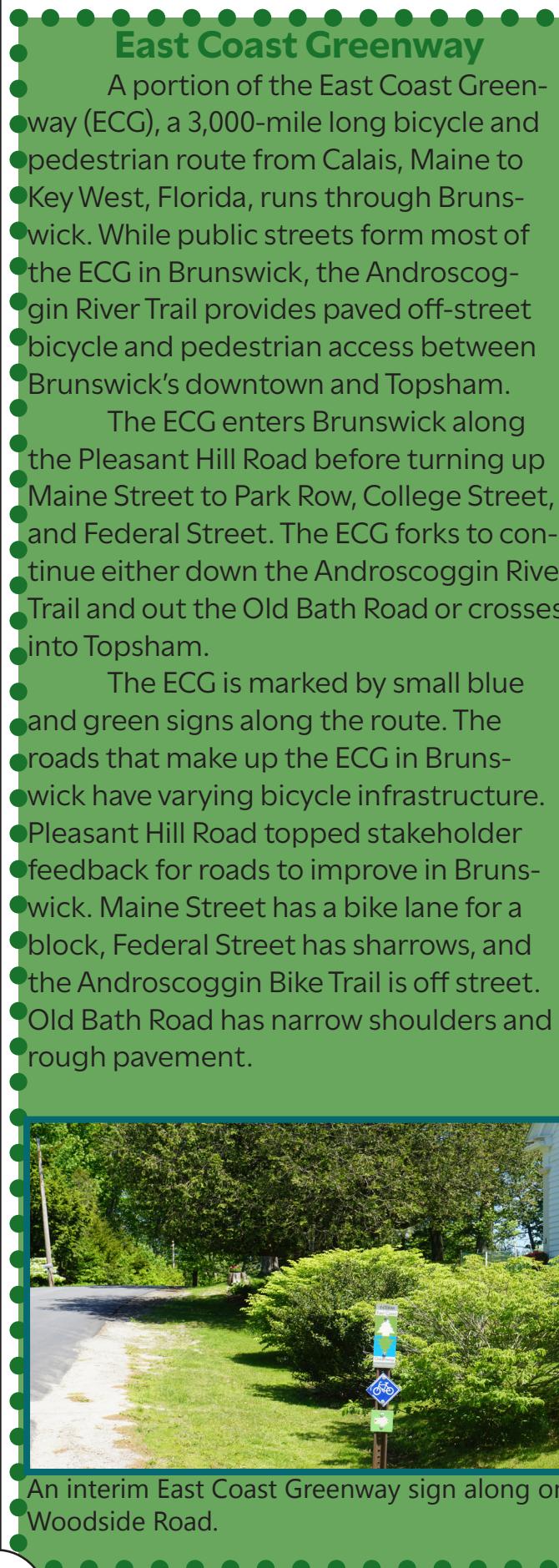
A shared lane at the Mere Point Boat Launch.

shoulders, good visibility, and careful drivers. Roads in western and eastern Brunswick are more inhospitable to bicyclists and pedestrians due to a lack of infrastructure, higher traffic volumes and speed limits, and, in places, no shoulders. Off-road trails offer protection from traffic to recreational pedestrians and bicyclists but do not further utility bicycle and pedestrian transit systems across town.

Signage denoting bicycle and pedestrian usage can be found throughout rural Brunswick roads. The East Coast Greenway (ECG) is marked with signage as well, but the signs are small and not highly visible to car traffic. Signage for bicyclists and pedestrians on Brunswick's rural roads can have low visibility. There is wayfinding for the ECG, to Paul's Marina, and some of the boat launches, but further wayfinding signage is lacking.



A bike sign on Pleasant Hill Road by Baribeau Drive.



## Planning Area Goals: Rural Roads & Trails

### Problem Statement 1: Pleasant Hill Road

Pleasant Hill Road is a popular spot for bicyclists and pedestrians and allows for access to Freeport and southwestern parts of town. While the road was repaved in 2020 between Maine Street and Casco Road, the road lacks continuous wide shoulders and traffic often travels above the 40 mph speed limit.

#### Possible Actions/ Strategies to Mitigate or Resolve Problem:

- Police traffic measurements/speed trap/sign (measure before/after speed difference of traffic)
- Cut back branches above "Watch For Joggers" sign
- Repainting to narrow the road as a traffic calming technique. Reducing road width also provides additional space for bikers and runners

#### Measurable Goals/ Intended Outcomes

Increased reports of safety from pedestrian and bicyclist stakeholders

#### Timeline for Actions

Short term: police traffic measurements and cutting trees around posted signs to enhance visibility

- Medium term: repaint the road, traffic calming techniques

### Problem Statement 2: Durham and River Roads

Durham Road and River Road provide access to neighboring towns and western Brunswick; however, the roads lack bicycle and pedestrian facilities and often have little to no shoulder. Additionally, the Pleasant Street corridor essentially leaves these areas inaccessible from parts of Brunswick south or east of Pleasant Street.

#### Possible Actions/ Strategies to Mitigate or Resolve Problem:

- Promote traveling through Topsham as alternative route to reach Durham
- Encourage use of Greenwood Road as an alternative route to access Durham Road
- Improve Route 1 conditions, implement traffic calming measures
- Addition of bike lanes, crosswalks with countdown signals, and sidewalks on both sides of outer Pleasant Street

#### Measurable Goals/ Intended Outcomes

Greater numbers of bicyclists and pedestrians use the roads in western Brunswick and stakeholders report greater safety reaching the area through the Pleasant Street corridor.

### Timeline for Actions

- Short term: promote other routes/access points to avoid crossing Pleasant Street to access River Road and Durham Road.
- Medium term: improve traffic crossing measures, ex. countdown signals at crosswalks
- Long term: repave Route 1, sidewalks, bike lanes on both sides of Pleasant Street

## Problem Statement 3: Woodside Road

Woodside Road, in the area between Church Road and Pleasant Hill Road, has blind turns and hills. Narrow shoulders and a lack of striping on the blind turns and hills put bicyclists, pedestrians, and vehicles in the same lane of travel.

### Possible Actions/ Strategies to Mitigate or Resolve Problem:

- Provide education/information to caution users about the road
- Promote the usage of Church Road to Pleasant Hill Road for bicyclists
- Install signage on road and stripe shoulders
- Repave road

### Measurable Goals/ Intended Outcomes

Delineate space on Woodside Road for bicyclists, pedestrians, and vehicles, so users do not come into conflict.

### Timeline for Actions

- Short term: encouragement of the use of other routes
- Medium term: stripe road, install signage
- Long term: repave road

## Problem Statement 4: Wayfinding

Brunswick's rural roads provide connections to regional areas of interest as well as recreational opportunities. Brunswick has roads that are safe and accessible to bicyclists and pedestrians and those that are not. Without knowing the area well, it may be hard to identify preferred routes.

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.

### Possible Actions/ Strategies to Mitigate or Resolve Problem:

It would be helpful for the public if the Town provided an easily accessible map on the Town of Brunswick Geographic Information System (GIS) 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.

Better wayfinding resources could encourage greater use of Brunswick's rural roads for recreation and would support the pub-

lishing of guides to preferred routes. Identify and evaluate preferred bicycle riding routes and advise the appropriate review entity if modifications to existing signs or additional wayfinding signage is recommended.

## Problem Statement 5:

### Middle Bay Road

Middle Bay Road is a key connector corridor that is heavily used by cars, cyclists, and pedestrians. This road connects Harpswell, Brunswick Landing, and Cooks Corner to the south end of downtown, Brunswick High School, and points toward Freeport. Middle Bay Road serves as an access corridor for trails coming from the Town Commons to Pennellville and Middle Bay. The view from Middle Bay Road towards Pennelville Road (and vice versa) is noted as a scenic view in the Town of Brunswick's 2002 Open Space Plan (see 2004 Scenic Inventory prepared by Terrance J. DeWan & Associates Landscape Architects).

Citizens report vehicle speed on curvy roads and poorly defined shoulders make Middle Bay Road feel unsafe for pedestrians, cyclists, and vehicles. From points south, Middle Bay Road has traditionally been used by students traveling to Brunswick High School, and for some, is the preferred route to Harpswell Road for traveling to the downtown areas of Brunswick. Locals report traffic on Middle Bay Road has increased with the growth at Brunswick Landing. It is notable that the Town Council will be forming a citizens advisory committee for the area. Collaboration on bicycle and pedestrian related issues in the area between the BBPAC and this future committee would be useful.

### Possible Actions/Strategies to Mitigate or Resolve the Problem:

- Remove vegetation to increase the conspicuity of cyclists and pedestrians at Middle Bay Road intersections
- Review the feasibility of improving road shoulders along Middle Bay Road
- Review the feasibility of installing bike lanes to Middle Bay Road

### Measurable Goals/ Intended Outcomes

Shoulder improvements within, and bicycle lane facilities to Middle Bay Road. Increased reports of safety from pedestrian and cyclist stakeholders.

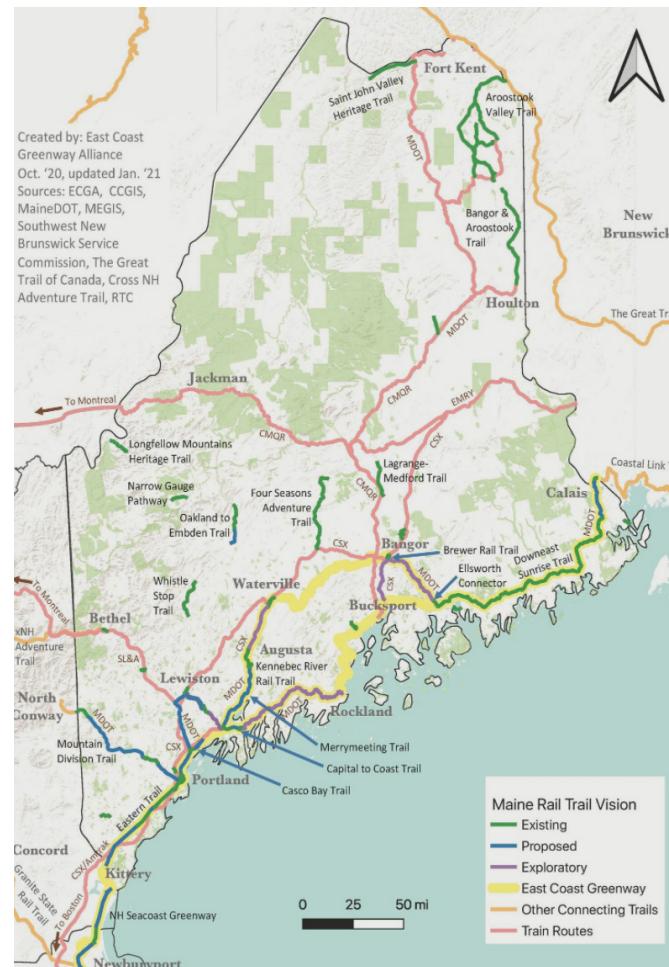
### Timeline for Actions

- Short term: speed study and cutting vegetation at intersections to enhance the visibility of pedestrian and cyclist stakeholders to automobiles
- Medium/long term: shoulder widening and bicycle lane facilities

### Other Considerations for Rural Roads & Trails

The ultimate vision of the East Coast Greenway (ECG) is an off-road regional multi-use trail corridor. The Casco Bay Trail, Merry-meeting Trail, and the Capital to the Coast Trail (included in the 2004 Androscoggin-to-the Kennebec Bicycle Path Feasibility Study prepared by T.Y. Lin International for the Town of Brunswick) intersect in Brunswick and have been considered in recent years by the Maine Legislature but have not been funded. These rail-trail corridors are

described in the Maine Rail-Trail Plan 2020-2030, prepared by the Maine Trails Coalition. Support regional efforts for an off-road ECG with special attention to the efforts of adjacent communities.



Map from Maine Trails Coalition's (MTC) Rail-Trail Plan

2020-2030

# Goals for All Planning Areas

## 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. In 2020, Brunswick began work on a study of the urban impaired Mare Brook watershed, funded by a grant from the DEP.

### Goals

- (1)** Reduce impervious areas in established travel corridors
- (2)** Improve watershed health while increasing bicycle and pedestrian safety and access

## 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. The Complete Streets Policy also considers traffic calming measures including vegetation and other green infrastructure that treat non-point source pollution and reduce peak flow runoff. Such infrastructure includes street trees, filter basins, vegetated filter strips, curbing and level spreaders (to reduce runoff channelization), and bioswales.

### Action Items

- (1)** Revise the Complete Streets Policy section V. to include the Federal Highway Administration (FHWA) "Incorporating On-Road Bicycle Networks into Resurfacing Projects" in the list of resources.

- (2)** Revise the Complete Streets Policy section VI.C. to provide similar interdepartmental review documentation to the BBPAC similar to the review checklist provided on page 19 of the above link.

- This recommendation will further standards at Section III. B. which apply complete streets opportunities for maintenance projects and activities including restriping.
- Include graphics of the review form and credit to FHWA

## Temporary Demonstration Projects in Travel Corridors: Pop-up Planning

In 2018-19, the BBPAC and Department of Planning and Development collaborated with the Bicycle Coalition of Maine (BCM) and other Department staff to develop and install pop-up demonstration projects. Pop-up 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 pop-up 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.

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

### 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

**(1)** Coordinate with staff and stakeholders to develop, implement, and evaluate pop-up demonstration projects to inform permanent infrastructure retrofits.

**(2)** Develop an instrument to evaluate the effectiveness of pop-up demonstration projects including a schedule for adjustments and removal.

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

**(4)** Advise the Town Council and other Brunswick Boards, Commissions, and Committees about anticipated pop-up demonstration projects prior to installation.

**(5)** Advise the appropriate entity on the results of the pop-up 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 carryout bike and pedestrian improvements.

### Action Items

**(1)** 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 of all ages 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 pedestri-

ans

**(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

**(1)** Develop educational materials for the public tailored to specific users and transit areas and town-wide planning issues

**(2)** Identify and collaborate with relevant groups to reach the public with educational materials

**(3)** Coordinate with the Brunswick Police Department to explore ways to improve conditions for bicyclists and pedestrians

**(4)** Create a proposal to promote RUN@Work and RUN@School Day in coordination with RRCA.

**(5)** Create a proposal to promote Bike to Work Week in coordination with Merrymeeting Wheelers, Brunswick Downtown Association, and Access Health.

(6) Publish a bicycle and pedestrian activities calendar on the BBPAC page.

# Priority Analysis & Story Map

## NOTE TO MAP USER:

THE STAKEHOLDER DATA, TOTAL RANKING, AND "E" MAPS (i.e., Engineering, Education, Encouragement, Enforcement & Evaluation, EDI, and Environment) WERE DIGITIZED FROM HAND DRAWN STAKEHOLDER MEETING NOTES AND SURVEYS AND DO NOT REPRESENT PLANNED IMPROVEMENTS. STAKEHOLDER MAPPING WAS SCORED WITH MINIMAL EDITING FOR USE AS A PLANNING GUIDE. FOR PLANNED IMPROVEMENTS REFER TO THE PLANNING AREAS OF THE BICYCLE AND PEDESTRIAN IMPROVEMENT PLAN UPDATE.

THIS STORY MAP SERVES TO GUIDE BICYCLE AND PEDESTRIAN IMPROVEMENTS IN BRUNSWICK. ALL BICYCLE AND PEDESTRIAN FACILITIES DESIRED BY STAKEHOLDERS ON PRIVATE LAND MAY REQUIRE LANDOWNER PERMISSION SUCH AS THE GRANTING OF AN EASEMENT FOR PUBLIC ACCESS. THE "PUBLIC PARK" FEATURE INDICATES A LOCATION OF CONSERVED LAND WHERE PUBLIC TRAIL ACCESS MAY BE PERMITTED. HOWEVER, LANDOWNERS MAY RESTRICT CERTAIN RECREATIONAL ACTIVITIES TO MAINTAIN LAND VALUES INCLUDING WILDLIFE HABITAT AND OTHER NATURAL AREAS. PLEASE CONTACT THE LANDOWNER FOR FURTHER GUIDANCE AND/OR REFER TO ANY ON-SITE INFORMATION KIOSK OR POSTINGS THAT DESCRIBE RULES OF THE LAND.

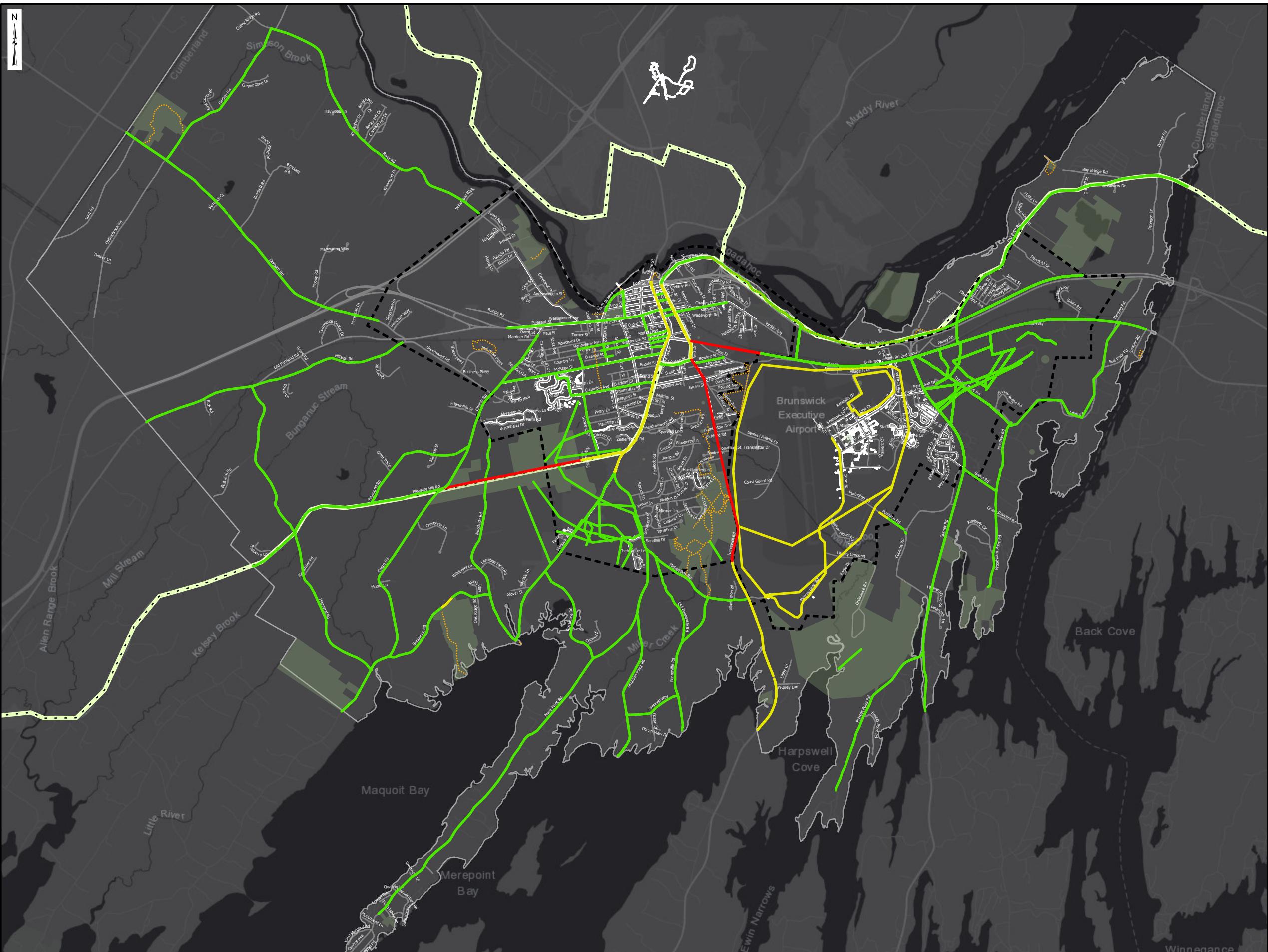
## Goal Statement

The story map ratings were developed using a stakeholder priority analysis that assigned a point-based ranking to each layer of the map ranging from reduced priority (-1 point) to very high priority (+3 points). Bicycle and pedestrian routes derived from public stakeholder meetings were intersected with the ranked map layers. Each bicycle and pedestrian route was summed with the ranked priority values it intersected with to calculate a total priority ranking. The total priority ranking was separated into three graduated colors: red, yellow and green. Each color represents a scale of opportunities for improving bicycle and pedestrian infrastructure and conditions.

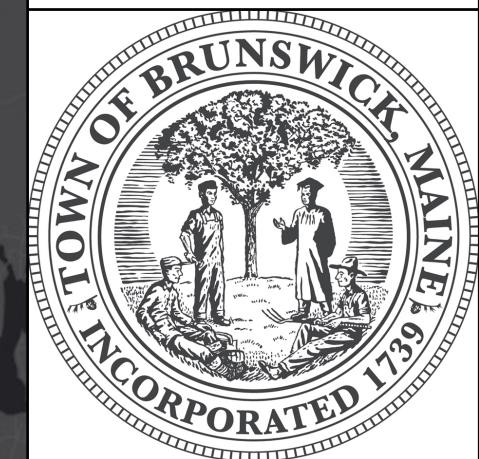
The goal of this priority analysis is to use the stakeholder inventory maps and the story map ratings for short- and long-range transportation projects with special attention to creating cohesive bicycle and pedestrian facilities within defined high and medium priority areas. Low priority areas may serve as a guide for connectivity within areas that have either few notable issues or already contain suitable bicycle and pedestrian facilities. The long-term objectives of the Brunswick Bicycle and Pedestrian Plan Update include: (1) make map ratings and stakeholder inventory maps publicly accessible, (2) develop small area neighborhood and regional plans informed by map inventory, and (3) review map inventory for updates and improvements as needed.

The story map can also be found online at:

<https://brunswickgis.maps.arcgis.com/apps/MapJournal/index.html?appid=f314441bd9fa-45c1a3cee971f60c5dd3>



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## Engineering Matrix Scoring

This map of Brunswick depicts spatial rankings based on the priority matrix for the Engineering category. The green color represents low priority, the yellow color represents high priority, and the red color represents very high priority.

To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) signifying 'very high priority'. The existing sidewalk, existing bike lane, MDOT road, and MDOT urban compact limit layers received rankings of 'reduced priority' (-1 point) because they represent existing infrastructure in the town.

Top wish list routes identify roads the public wished were better for bicycle travel. Many of the top wish list routes are also top utility or recreational routes indicating that many of the most popular roads need bicycle infrastructure improvements. Maine Street, Bath Road, and Federal Street/Sills Drive/Harpswell Road accounted for 43% of public responses and were assigned the ranking 'very high priority' (+3 points).

Cook's Corner/Bath Road topped the list of desired pedestrian destinations, and Brunswick Landing was also a highly desired destination. Cook's Corner/Bath Road and Brunswick Landing accounted for 67% of public responses in this category. Other popular destinations suggested the importance of expanding connectivity to the downtown region.

Maine Street and Cook's Corner/Bath Road were the top streets identified to improve pedestrian infrastructure and connect to the most popular current and desired destinations. Both the pedestrian survey and the bicycle survey named Maine Street and McKeen Street as areas to improve infrastructure. Pedestrian survey respondents noted Baribeau Drive and Gurnet Road as in need of improvements while bicycle survey respondents did not. Overall, Maine Street, Cook's Corner/Bath Road, and Outer Pleasant St/River Road accounted for over half of the responses.

## Bicycle Pedestrian Plan Education



Criteria: Giving people of all ages and abilities the skills and confidence to ride and/or walk to school.

Location Map

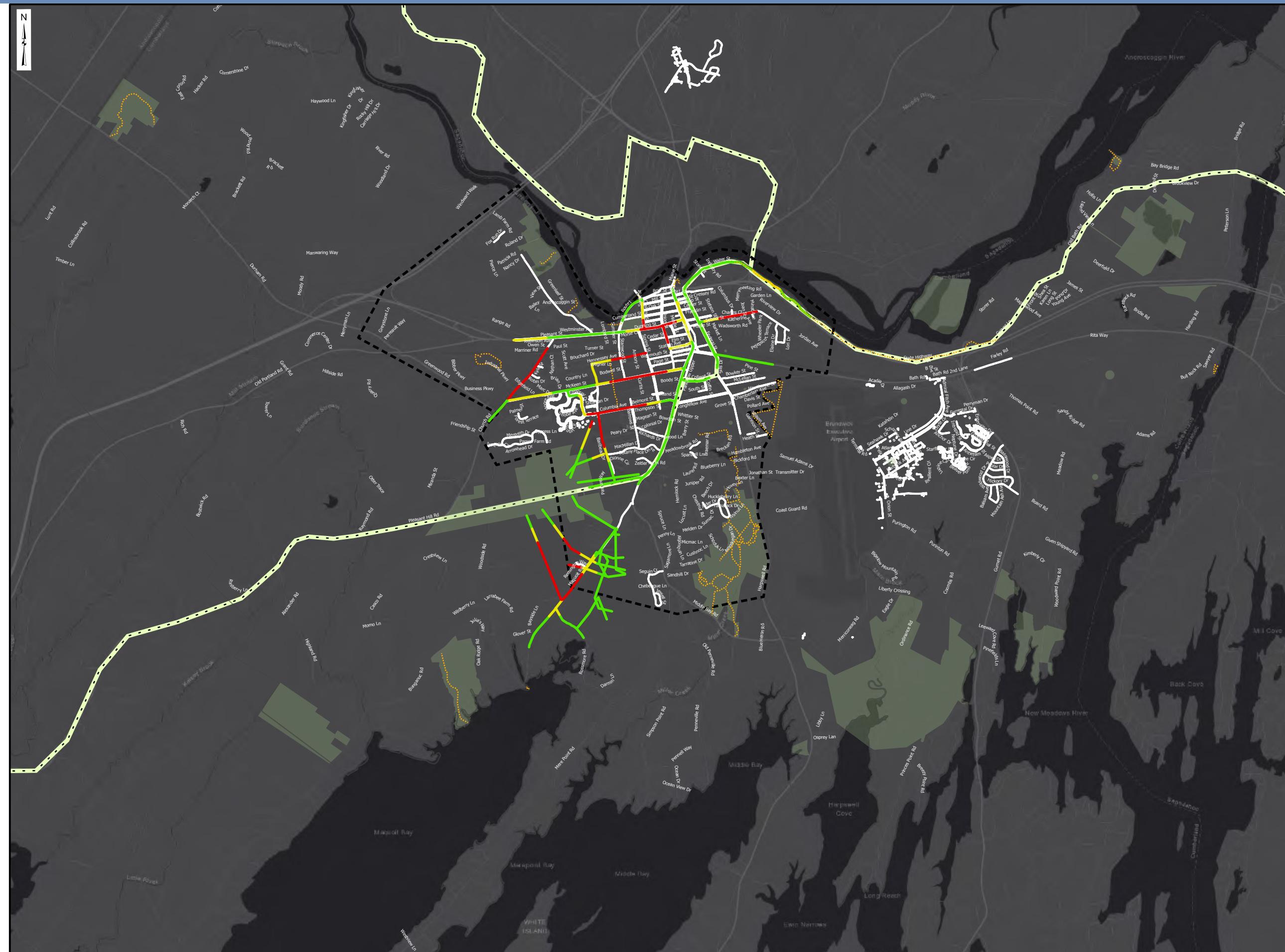
### Legend

- Low Priority
- High Priority
- Very High Priority
- Public Parks
- Existing Sidewalks
- East Coast Greenway
- Existing Trails
- Planning Areas

SCALE: 1" = 4,167'

## Town of Brunswick

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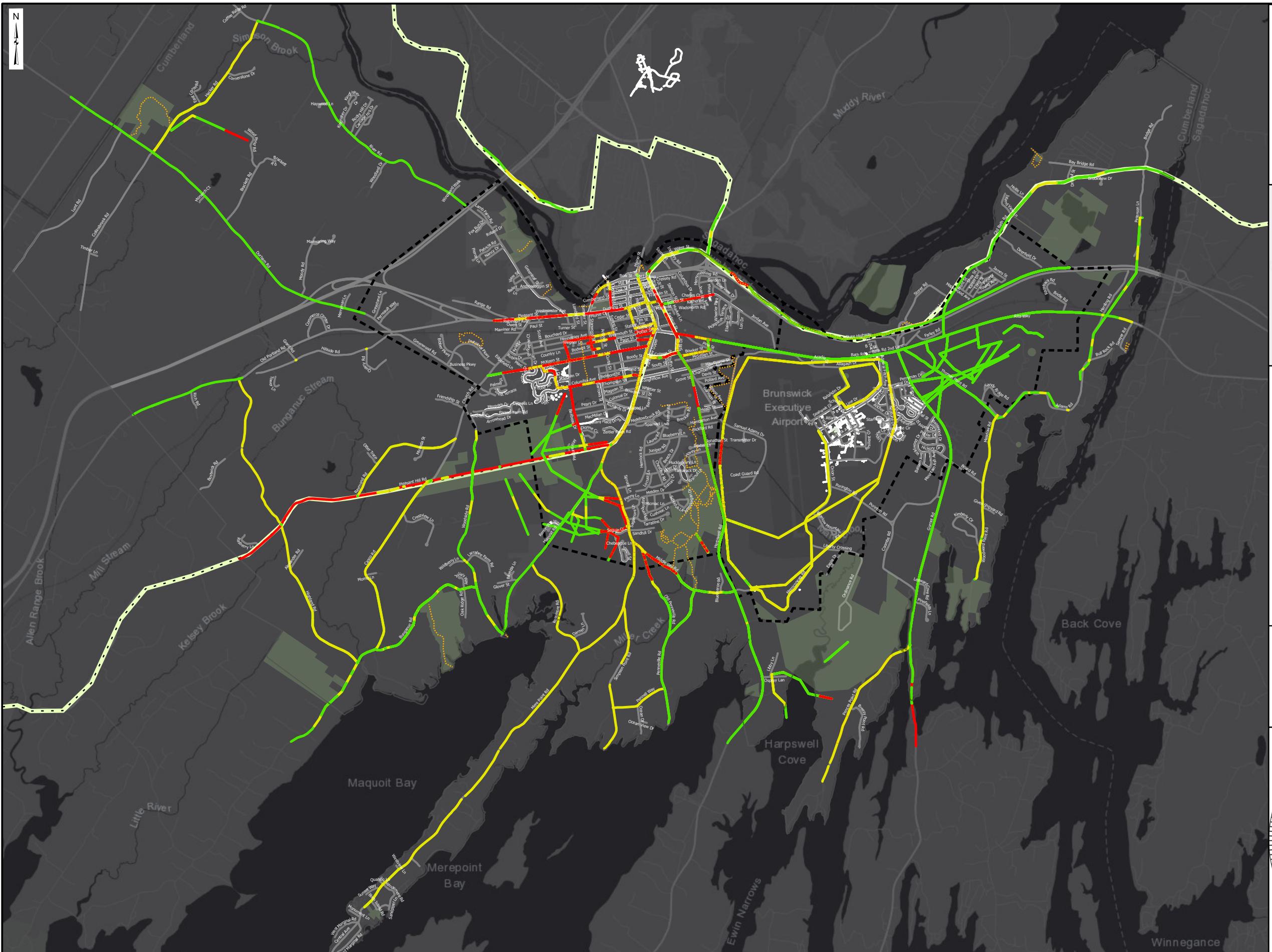


## Education Matrix Scoring

This map of Brunswick depicts spatial rankings based on the priority matrix for the Education category. The green color represents low priority, the yellow color represents high priority, and the red color represents very high priority.

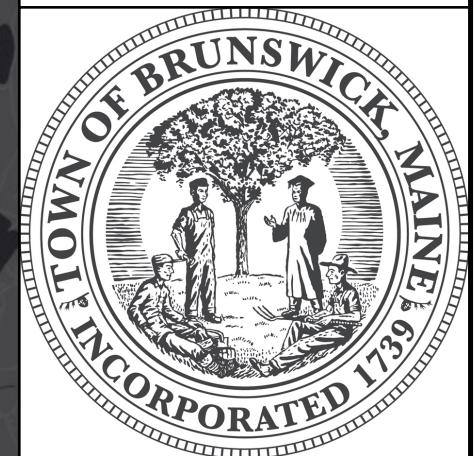
The Maine Office of GIS (MEGIS) provided the baseline data for schools in the project area. The Town of Brunswick Planning Department created half, quarter, and eighth-mile buffers around schools to account for bikeability and walkability. Goals include improving the safety and security of routes to school, increasing the usage of bike and pedestrian modes, and improving the connections between schools and currently unconnected neighborhoods.

To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The school layer received rankings based on the buffer distance. The eighth-mile buffer was ranked 'very high priority' (+3 points), quarter-mile buffer was ranked 'high priority' (+2 points), and the half-mile buffer was ranked 'increased priority' (+1 point).



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## Encouragement Matrix Scoring

This map of Brunswick depicts spatial rankings based on the priority matrix for the Encouragement category. The green color represents low priority, the yellow color represents high priority, and the red color represents very high priority.

The Town of Brunswick Planning Department created the baseline data for the recreation center, public park, and paper street layers. The Brunswick Topsham Land Trust (BTLT) provided the layer for public trails. The town created half, quarter, and eighth-mile buffers around the layers to account for bikeability and walkability.

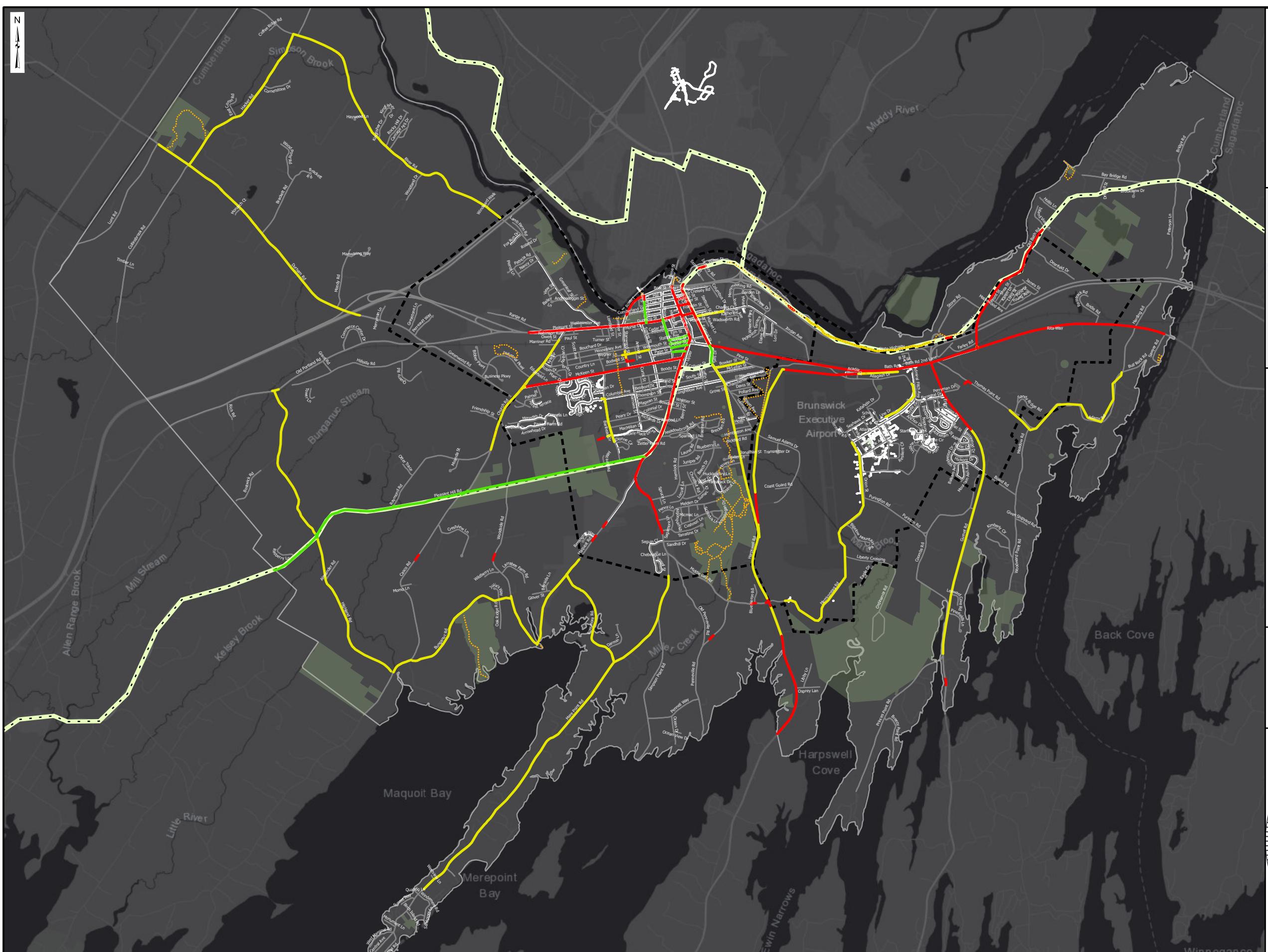
The recreation center, public park, and paper street layers received rankings based on the buffer distance. Each eighth-mile buffer was ranked 'very high priority' (+3 points), quarter-mile buffer was ranked 'high priority' (+2 points), and the half-mile buffer was ranked 'increased priority' (+1 point).

Most popular bicycling destinations represent places individuals currently bike to or think are important to be conveniently accessible by bike. The public survey showed an overwhelming majority believed Downtown was the most popular bicycling destination. Other popular destinations included schools, Cook's Corner, Brunswick Landing, and Bowdoin College. Recreational destinations including rural roads, the Androscoggin Bike Path, and public parks were popular. Crystal Spring Farm was a popular utility and recreation destination.

Most popular recreational routes identify roads most important to individuals for recreational bicycling. According to the survey results, the most popular recreational routes were concentrated in the southern rural areas of Brunswick. Pleasant Hill Road (31), Brunswick Landing (30), and Mere Point Road (29) accounted for the 55% of public responses.

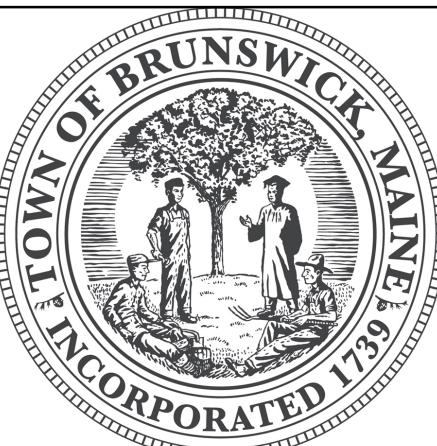
Most popular current pedestrian destinations represent locations the public currently walks to or thinks are important to be conveniently accessible by foot. The public survey showed that the most popular current pedestrian destinations were heavily concentrated in the downtown planning area. There was significant overlap between bicycle and pedestrian destinations, including Crystal Spring Farm, public parks, Cook's Corner, and Brunswick Landing.

Local streets may not be considered due to public stakeholder meeting responses. Opportunities for connections to pedestrian and/or bicycle destinations (trip ends) should be evaluated for facilities that advance the encouragement sections priorities and goals.



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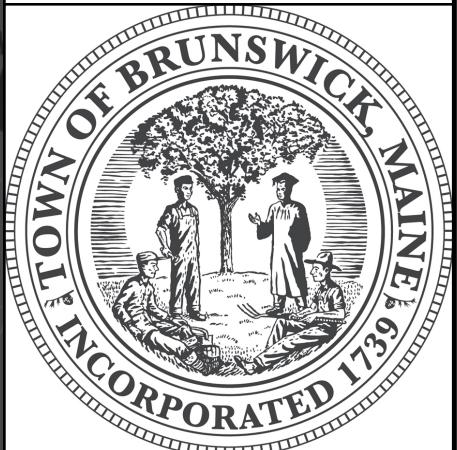
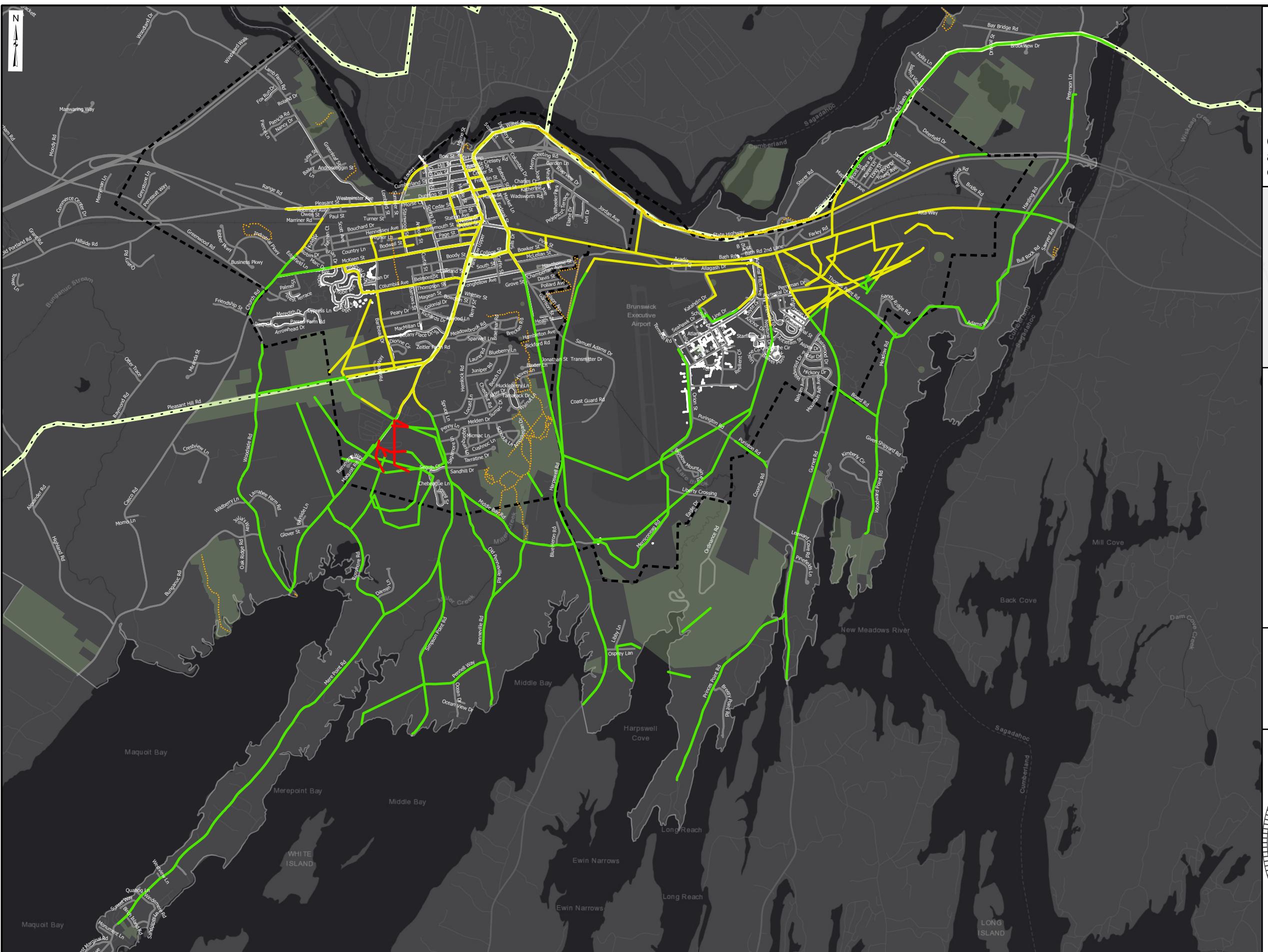
## Enforcement Matrix Scoring

This map of Brunswick depicts spatial rankings based on the priority matrix for the Enforcement and Evaluation category. The green color represents low priority, the yellow color represents high priority, and the red color represents very high priority.

The Brunswick Police Department provided the baseline data for bicycle and pedestrian crash locations. The Town of Brunswick Planning Department added a 50-meter buffer around each crash location to account for the possibility of a type I error in the spatial analysis. The Planning Department mapped points and lines of safety concerns derived from public stakeholder comments. Again, a 50-meter buffer was added to each safety concern location to account for the possibility of a type I error in the spatial analysis. The Planning Department provided the data from two (2) pilot sites, with 50-meter buffers.

Most popular utility routes represent the roads most important to the public for recreational bicycling and walking. The most popular utility routes for bicycling are also popular routes for car travel. The public survey showed an overwhelming majority stated Maine Street was the most popular utility route to bring bicyclists to the downtown stores and destinations. Additionally, Bath Road was a popular route for access to Cook's Corner, and Pleasant Hill Road was likely popular due to its access to Crystal Spring Farm and other rural roads.

To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The crash location and safety concern layers received a ranking of 'high priority' (+2 points).

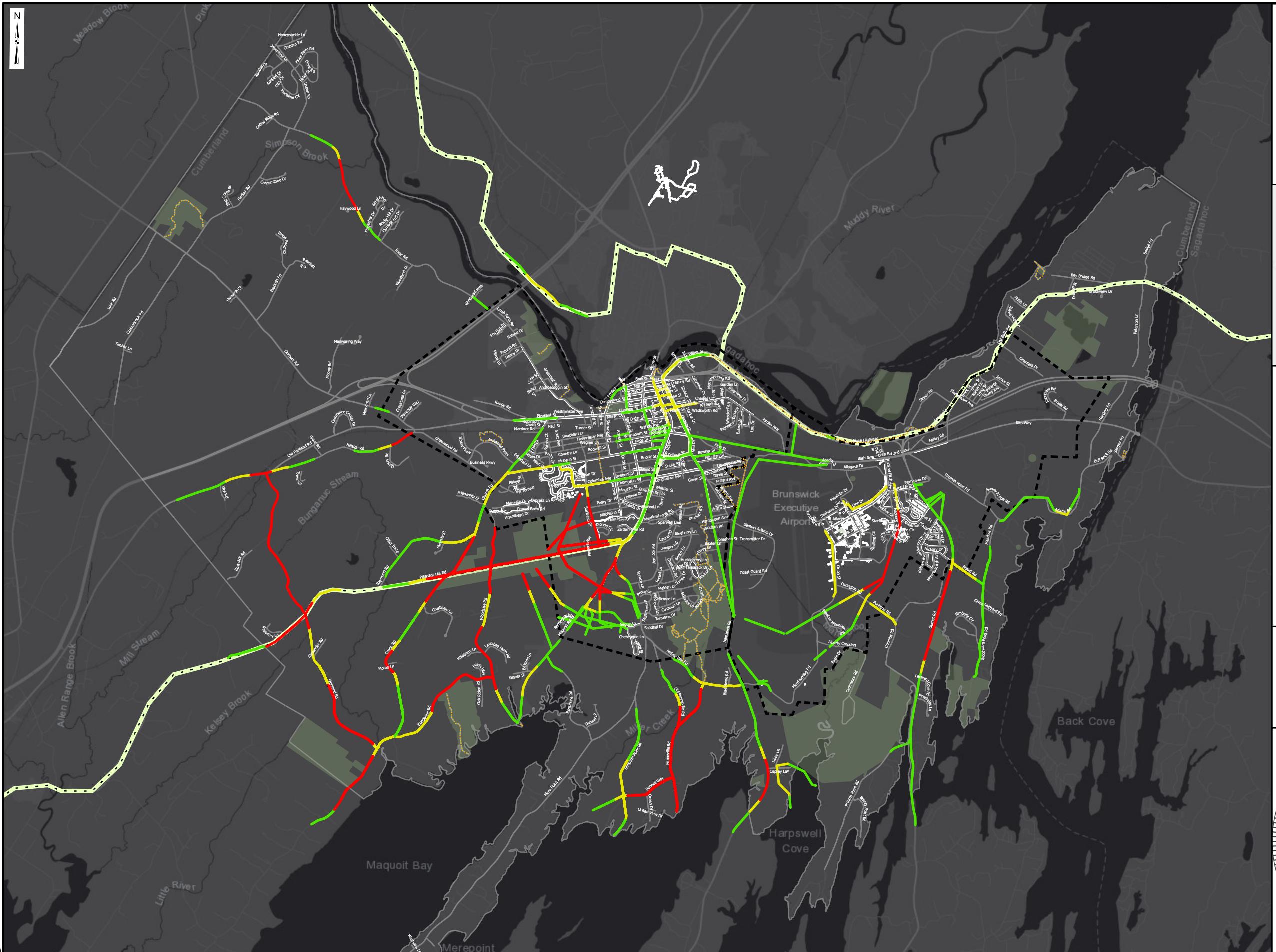


## **Equity, Inclusion & Diversity Matrix Scoring**

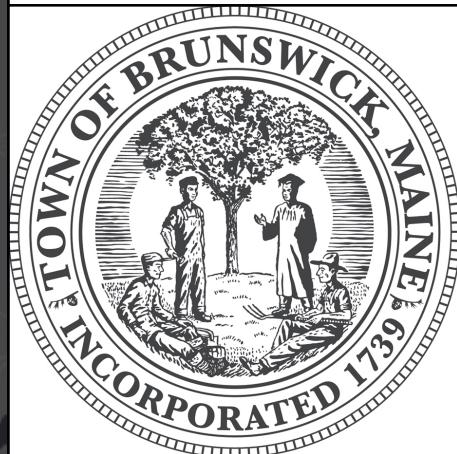
This map of Brunswick depicts spatial rankings based on the priority matrix for the Equity, Diversity & Inclusion category. The green color represents low priority, the yellow color represents high priority, and the red color represents very high priority.

The Living Atlas American Community Survey (ACS) provided the baseline data for the low-income population area. If 13.5% or more of the population in each respective census tract had an income in the past 12 months below the federal poverty level, the area was considered low income. The ACS provided data on the elderly population as well, and Census tracts with 30% or more of their population above the age of 65 were designated elderly. The Town of Brunswick Planning Department combined subsidized housing and mobile home locations to derive the affordable housing layer. The Department created a bus stop location and route layer, and a half-mile buffer around the stops for the Metro Breez and the Brunswick Explorer accounted for walkability.

To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The low-income population, elderly population, and affordable housing layers received a ranking of 'very high priority' (+3 points). The bus stop locations and routes layer received a ranking of 'high priority' (+2 points).



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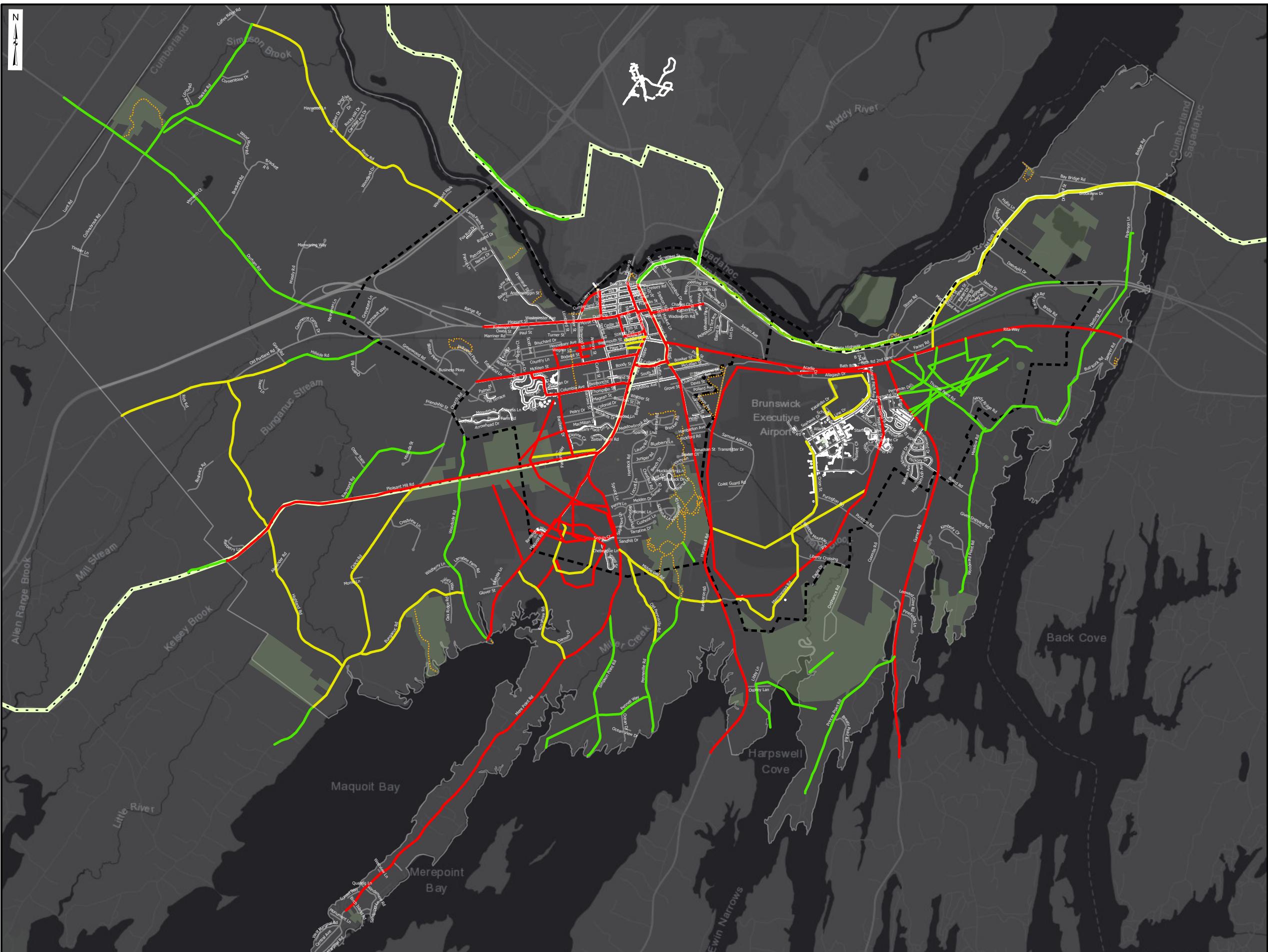
## Environment Matrix Scoring

This map of Brunswick depicts spatial rankings based on the priority matrix for the Environment category. The green color represents low priority, the yellow color represents high priority, and the red color represents very high priority.

The Maine Department of Environmental Protection (DEP) provided the data for urban impaired stream watersheds. The Brunswick-Topsham Land Trust provided the baseline data for public conservation land. The Town of Brunswick Planning Department created half, quarter, and eighth-mile buffers around the public conservation lands accounting for bike and walkability.

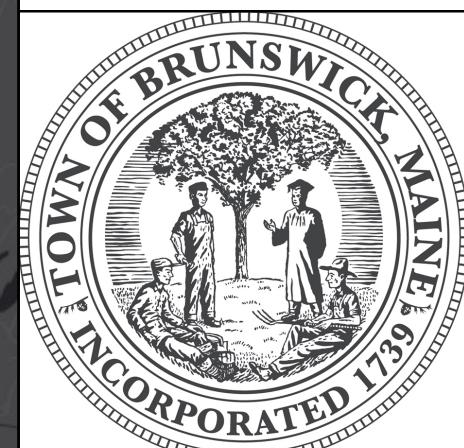
To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The urban impaired stream watershed layer received a ranking of 'increased priority' (+1 point).

The public conservation land layers received rankings based on the buffer distance of the layer. The eighth-mile buffer was ranked 'very high priority' (+3 points), quarter-mile buffer was ranked 'high priority' (+2 points), and the half-mile buffer was ranked 'increased priority' (+1 point).



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## Final Ranking Matrix Scoring

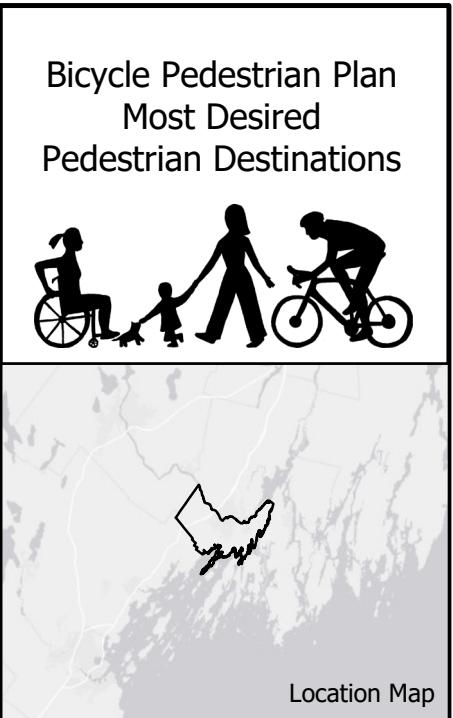
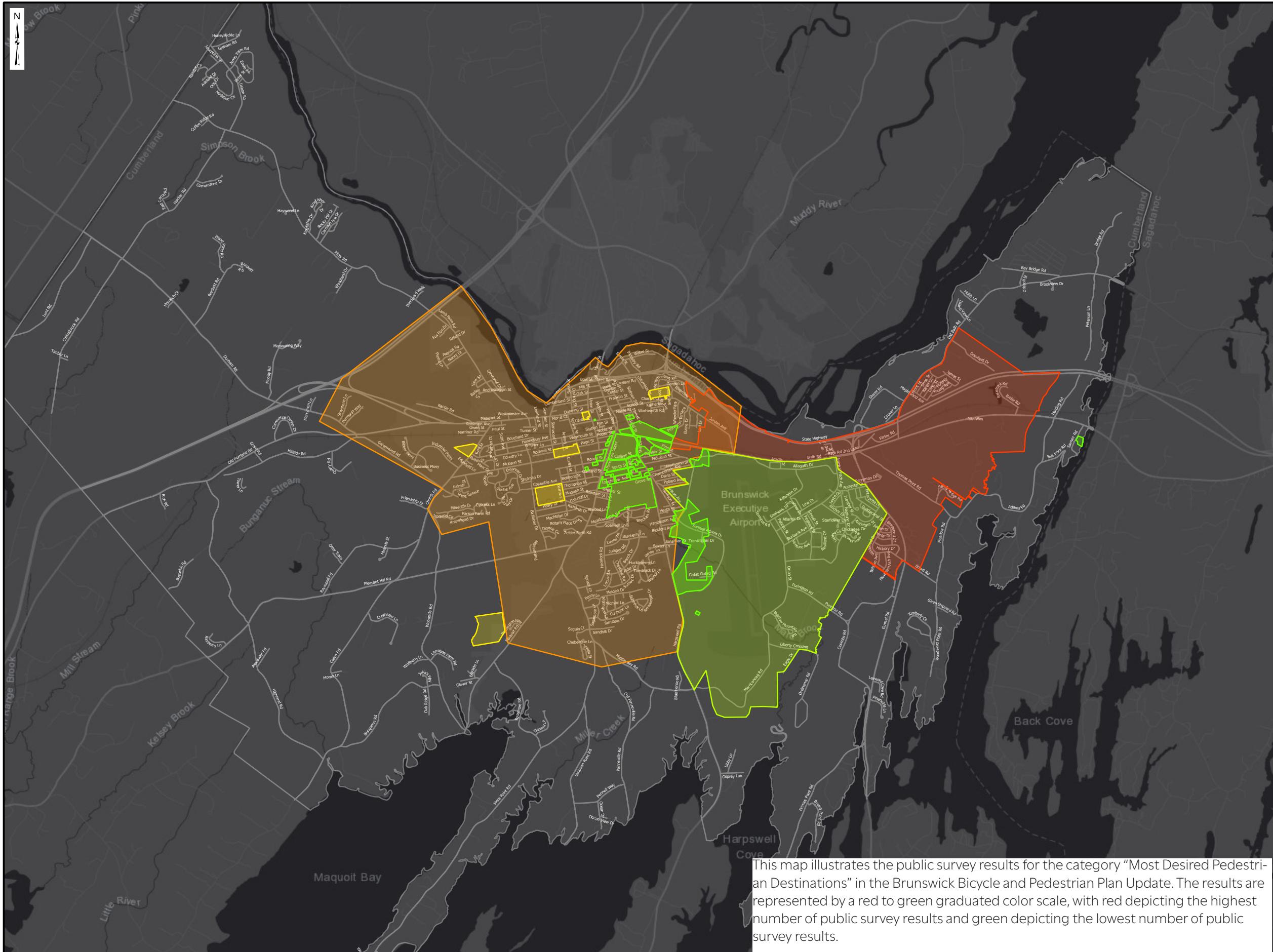
This map of Brunswick depicts summed spatial rankings based on the priority matrix for the categories: (1) Engineering, (2) Education, (3) Encouragement, (4) Enforcement & Evaluation, (5) Equity, Diversity & Inclusion, and (6) Environment. The green color represents low priority, the yellow color represents high priority, and the red color represents very high priority.

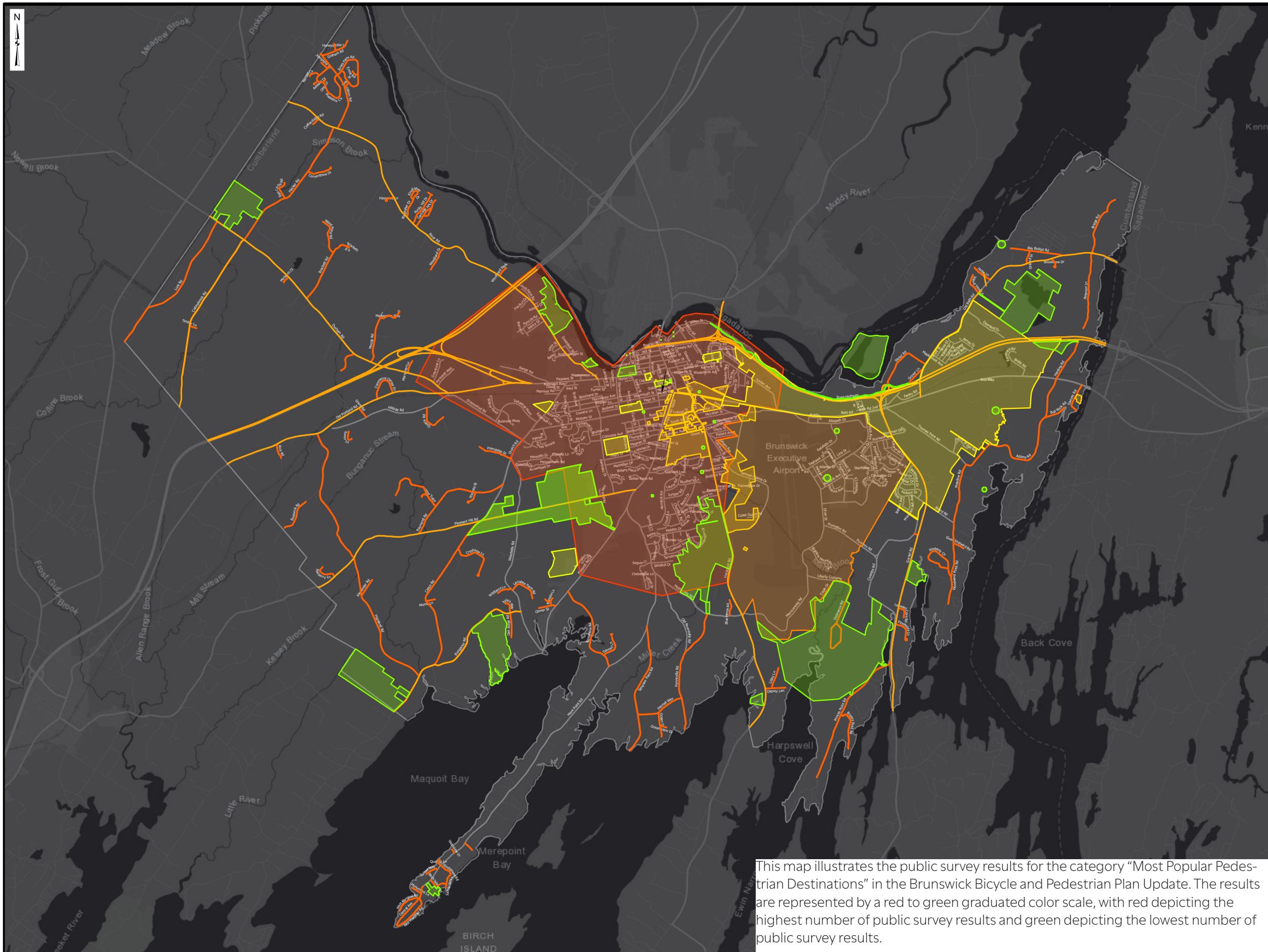
# Stakeholder Maps

## NOTE TO MAP USER:

THE STAKEHOLDER DATA, TOTAL RANKING, AND "E" MAPS (i.e., Engineering, Education, Encouragement, Enforcement & Evaluation, EDI, and Environment) WERE DIGITIZED FROM HAND DRAWN STAKEHOLDER MEETING NOTES AND SURVEYS AND DO NOT REPRESENT PLANNED IMPROVEMENTS. STAKEHOLDER MAPPING WAS SCORED WITH MINIMAL EDITING FOR USE AS A PLANNING GUIDE. FOR PLANNED IMPROVEMENTS REFER TO THE PLANNING AREAS OF THE BICYCLE AND PEDESTRIAN IMPROVEMENT PLAN UPDATE.

THIS STORY MAP SERVES TO GUIDE BICYCLE AND PEDESTRIAN IMPROVEMENTS IN BRUNSWICK. ALL BICYCLE AND PEDESTRIAN FACILITIES DESIRED BY STAKEHOLDERS ON PRIVATE LAND MAY REQUIRE LANDOWNER PERMISSION SUCH AS THE GRANTING OF AN EASEMENT FOR PUBLIC ACCESS. THE "PUBLIC PARK" FEATURE INDICATES A LOCATION OF CONSERVED LAND WHERE PUBLIC TRAIL ACCESS MAY BE PERMITTED. HOWEVER, LANDOWNERS MAY RESTRICT CERTAIN RECREATIONAL ACTIVITIES TO MAINTAIN LAND VALUES INCLUDING WILDLIFE HABITAT AND OTHER NATURAL AREAS. PLEASE CONTACT THE LANDOWNER FOR FURTHER GUIDANCE AND/OR REFER TO ANY ON-SITE INFORMATION KIOSK OR POSTINGS THAT DESCRIBE RULES OF THE LAND.



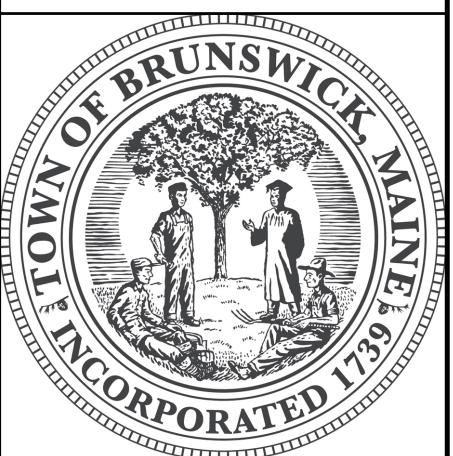
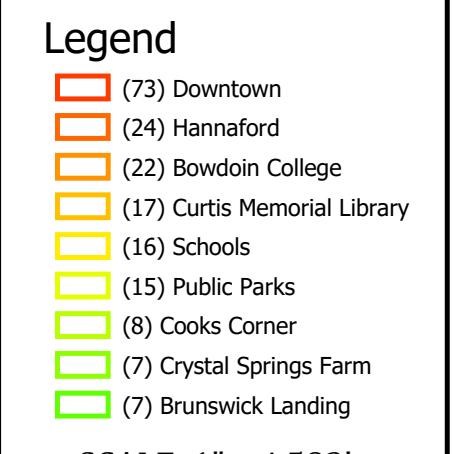
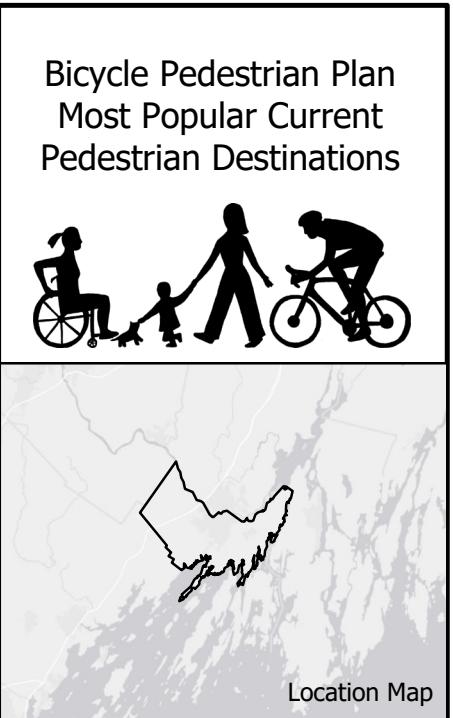
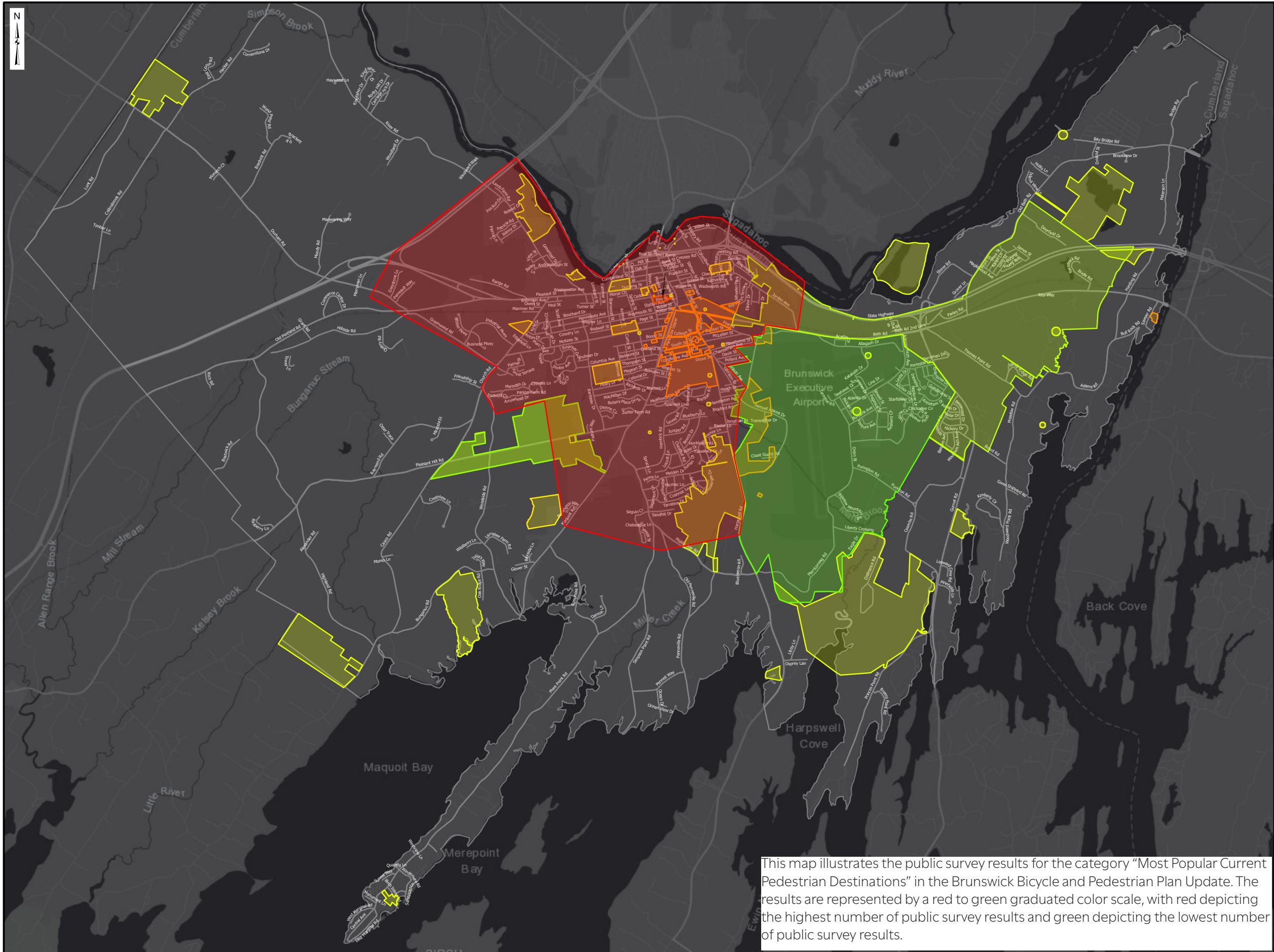


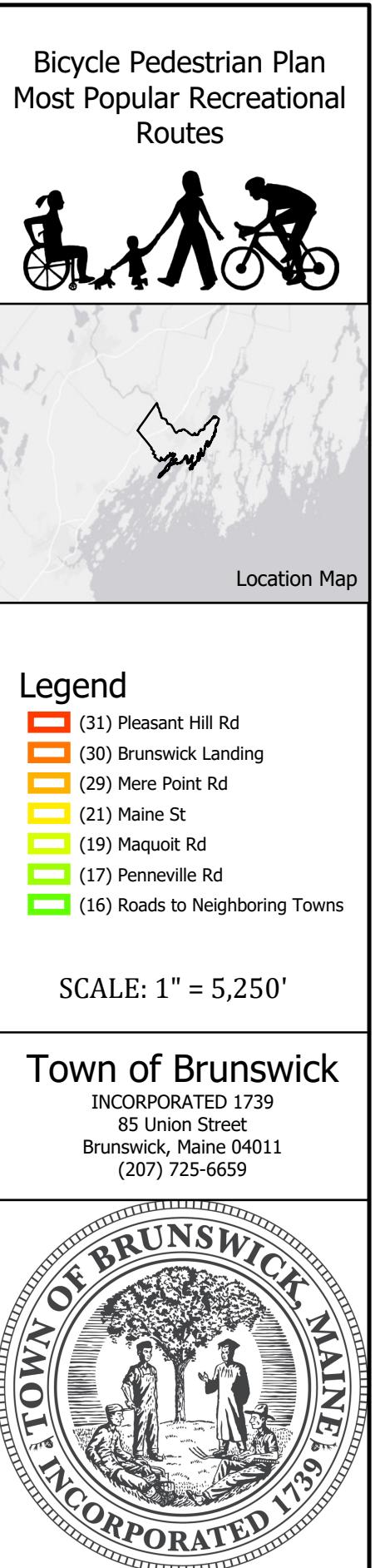
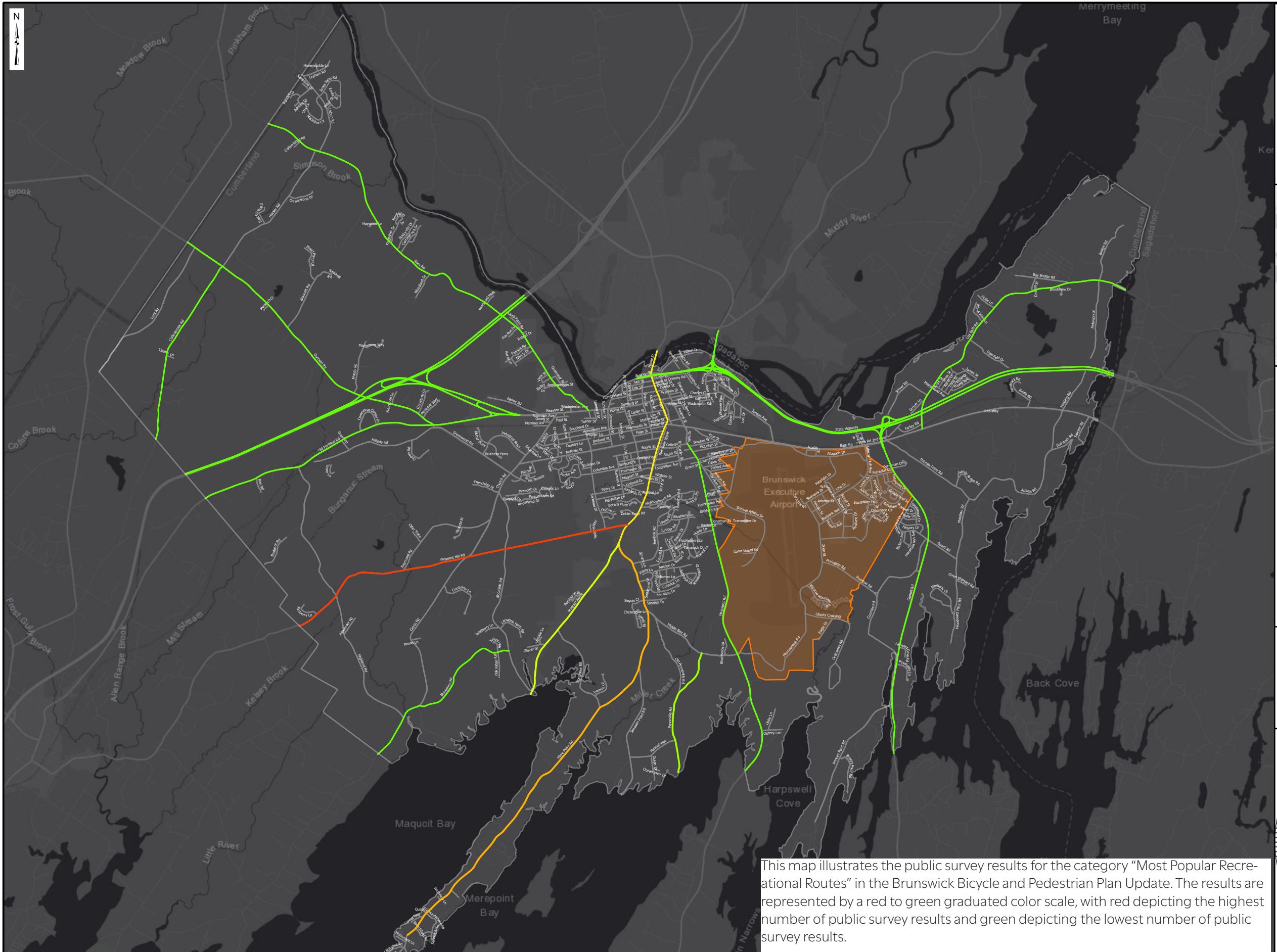
## Town of Brunswick

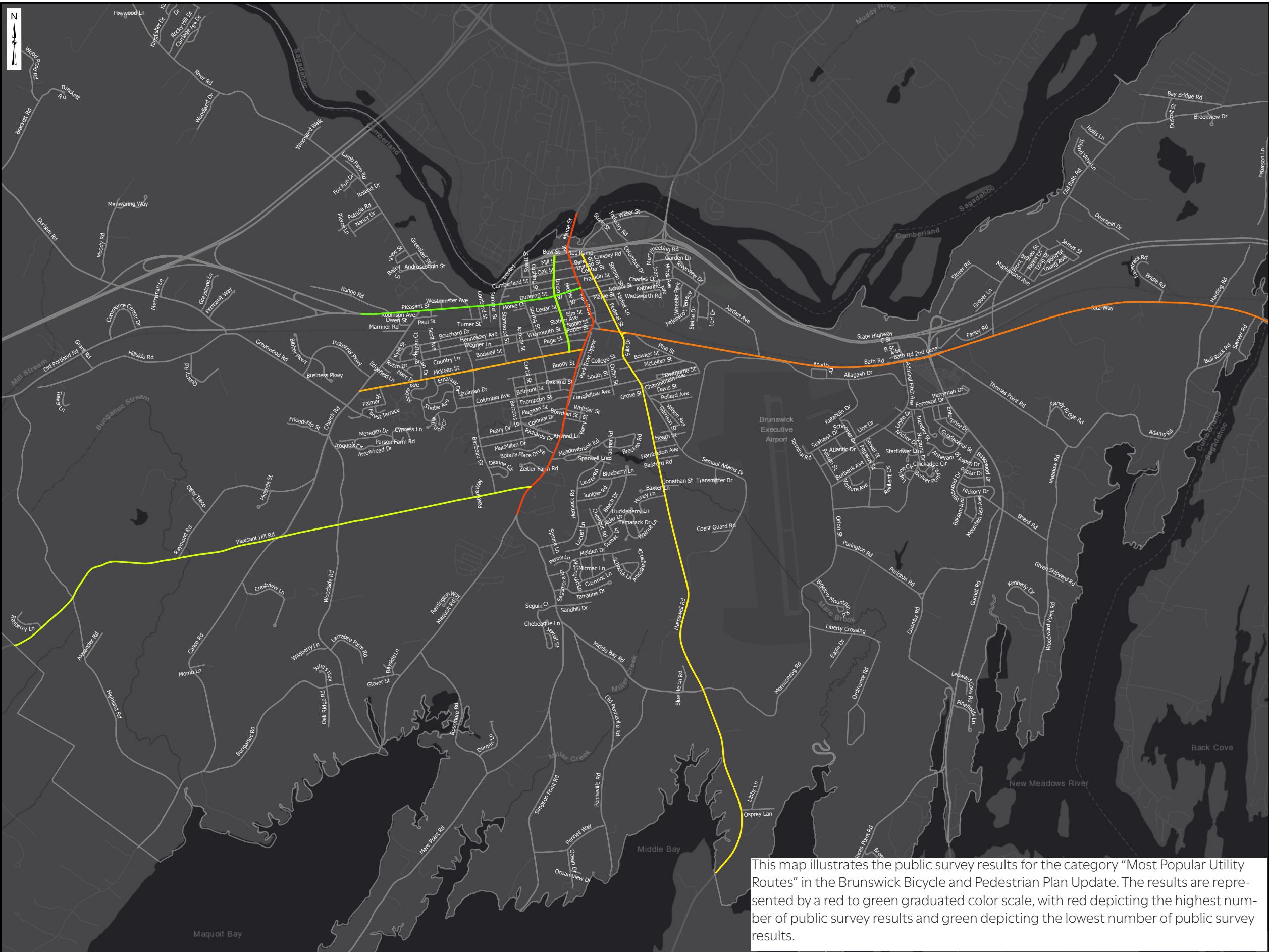
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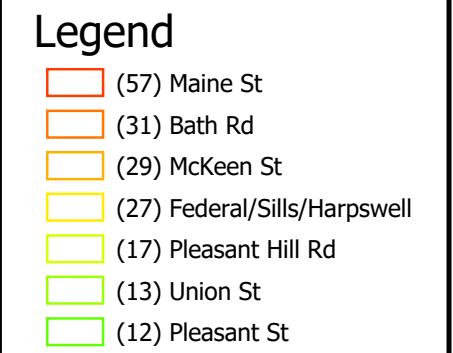
This map illustrates the public survey results for the category "Most Popular Pedestrian Destinations" in the Brunswick Bicycle and Pedestrian Plan Update. The results are represented by a red to green graduated color scale, with red depicting the highest number of public survey results and green depicting the lowest number of public survey results.

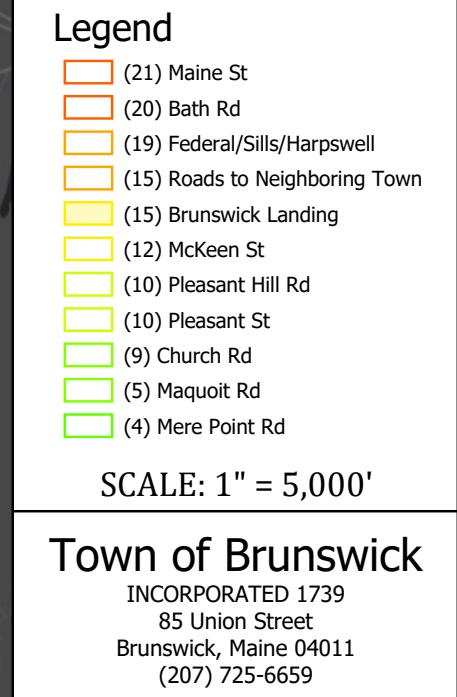
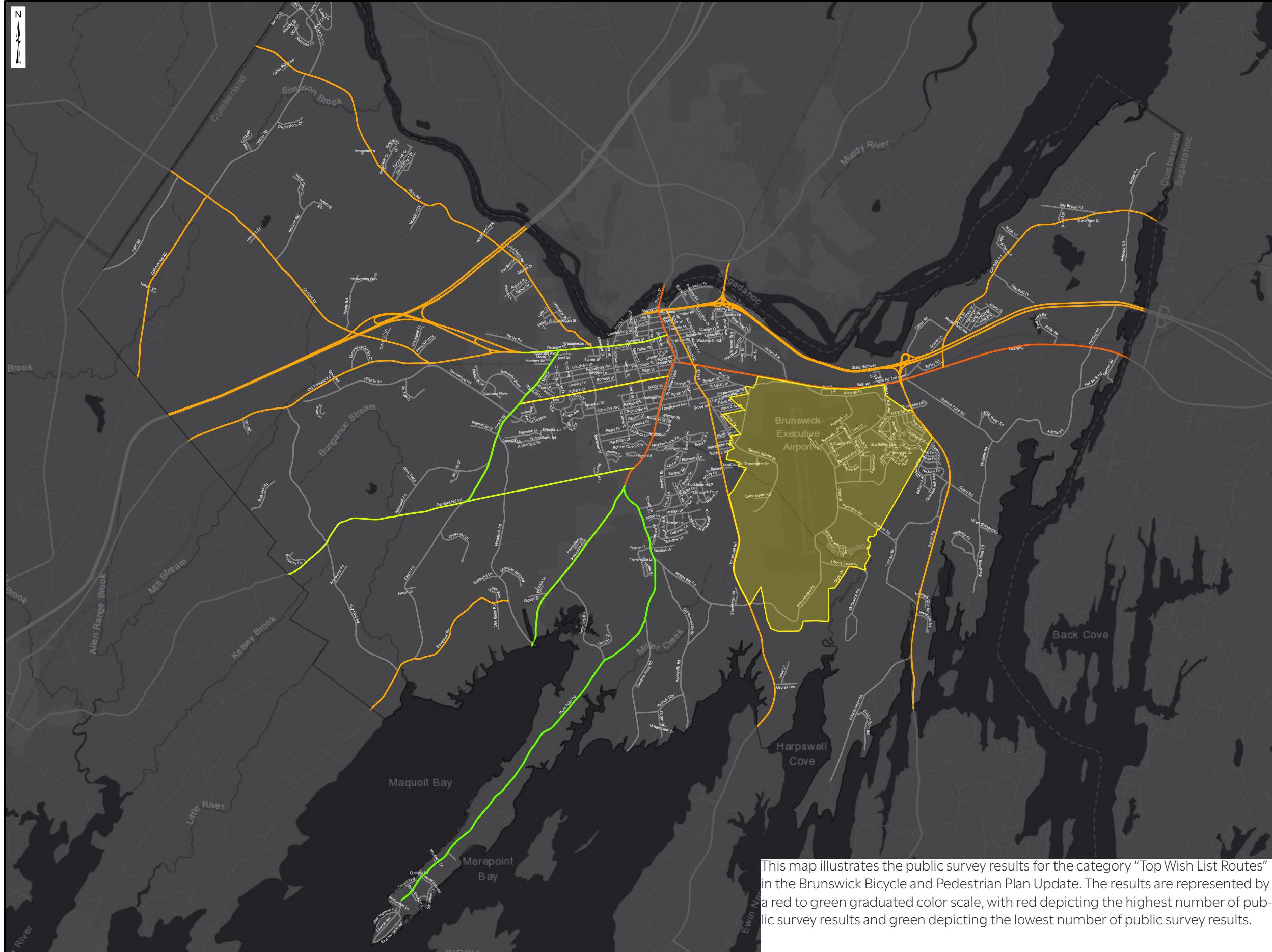


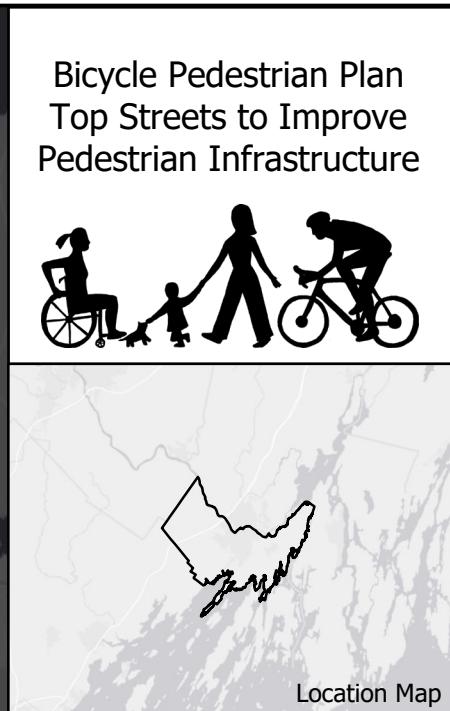
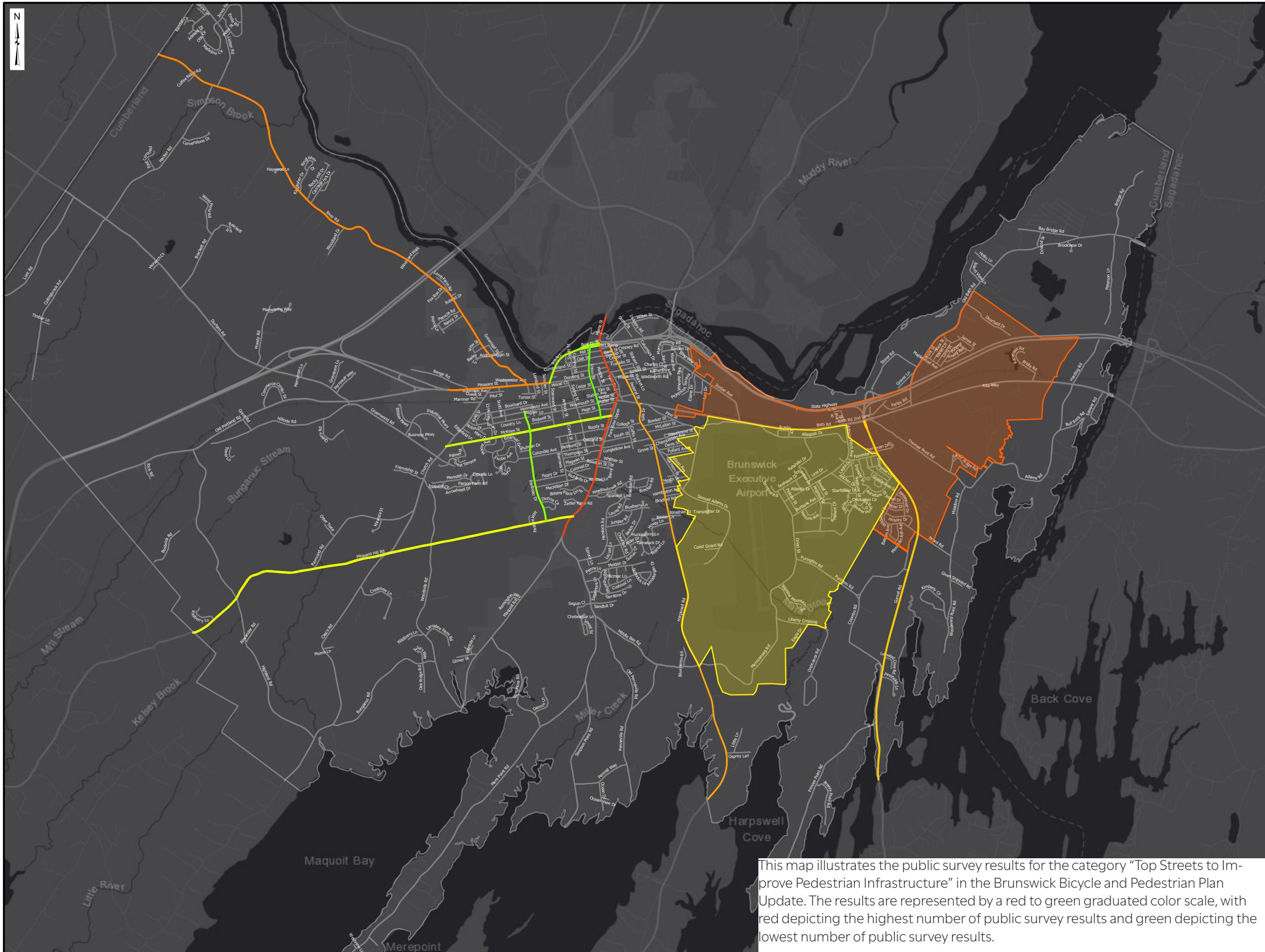




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\*Roads and locations mentioned in the plan are drawn from the community stakeholder meetings. Any road or location identified through the group mapping exercises or the individual surveys is included in the plan. If you do not see your road mentioned in this index, it was not identified at the community stakeholder meetings.

# Appendix I

## Goal Chart

### Priority Categories



**Engineering:** Create safe and convenient places to ride, walk, and park.



**Education:** Give people of all ages and abilities the skills and confidence to ride and/or walk to school.



**Encouragement:** Create a strong bike and pedestrian culture that welcomes and celebrates biking and walking



**Enforcement & Evaluation:** Ensure safe roads for all users and plan for bicycling and walking as a viable option.



**Equity, Diversity & Inclusion (EDI):** Achieve the vision of a bike and pedestrian friendly Brunswick for everyone.



**Environment:** Attempt to mitigate any environmental concerns or issues.

### Badge Color Ranking

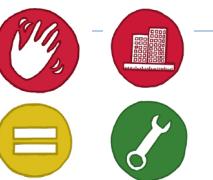
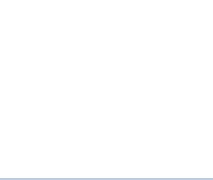
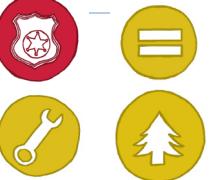
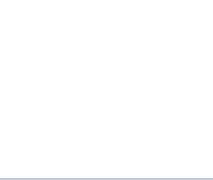
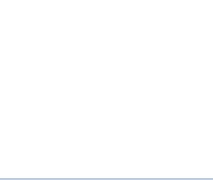
**Red:** Very High Priority

**Yellow:** High Priority

**Green:** Low Priority

Since the priority analysis was done by individual streets, a goal without badges indicates that the goal addresses an area with too many streets to rank using the priority analysis.

Location	Goal	Action	Timeline	Priority Areas
Pleasant, Mill & Stanwood Streets Intersection	Create a safe crossing for bicyclists and pedestrians	Engage in MDOT and Town Council process to advocate for lights, crosswalks, improved sidewalks	Long-term, 5 years	     
Outer Pleasant Street	Increase use of outer Pleasant Street by bicyclists and pedestrians	Investigate use of paper streets as alternate paths, reduce curb cuts, widen sidewalks	Medium to long term, 3-5 years	     
Baribeau & McKeen Street Intersection	Improve safety of crossing, reduce incidents of cars ignoring crosswalk users	Post a crossing guard at the intersection, upgrade crossing to MDOT standards, install RRFB	Short to medium term, 1-3 years	     
Stanwood Street crossings to Harriet Beecher Stowe School	Improve ease of crossing from neighborhoods west of HBS to school	Install sidewalk on west side of Stanwood St	Long-term, 5 years	     
Neighborhoods near schools	Increase connectivity to schools from currently	Investigate use of paper streets and rights-of-way to connect isolated neighborhoods to schools	Long-term, 5 years	     
Jordan Avenue	Improve bicycle and pedestrian access to Kate Furbish School	Evaluate feasibility of sharrows and conduct further transit study	Short to long term, 1-5 years	     

Union Street from Noble Street to Tenney Way	Provide designated space for bicyclists and pedestrians	Utilize expanded sidewalks, reduced curb cuts and stripping	Short to long term, 1-5 years	        
Mason, Water, and Federal Streets intersection	Improve pedestrian crossing	Evaluate feasibility of pedestrian refuge island	Long term, 5 years	       
Fort Andross	Improve bicycle connectivity	Evaluate bicycle lane feasibility at time of Route 201 bridge replacement	Medium to long term, 3-5 years	     
Downtown Maine Street	Improve bicycle access to downtown shops & restaurants	Consider feasibility of bicycle lanes on lower Maine Street	Long term, 5 years	    
Sills Drive and Bath Road	Connect fragmented pedestrian facilities in area	Connect Pine Street and Sills Drive	Long term, 5 years	   
Longfellow Avenue, Park Row, and Maine Street	Improve high volume of student transit	Stripe wide shoulders on Longfellow Avenue	Medium term, 3 years	  

<b>Topsham border</b>	Improve bicycle and pedestrian access to Topsham	Support efforts of the Parks and Recreation Department to improve access to Topsham	No timeline	
<b>Downtown</b>	Improve signage to points of interest	Identify specific downtown signage needs	Long term, 5 years	
<b>School areas</b>	Increase public knowledge of Safe Routes to School	Publish SRTS wayfinding map on the Town website	Medium term, 3 years	
<b>Sidewalks and crosswalks</b>	ADA compatibility	Evaluate ADA compatibility throughout town	Long term	
<b>Downtown and Pleasant Street</b>	Committee collaboration for increased effectiveness	Support bicycle and pedestrian related efforts of BDA, MPIC, VRB, and MDOT	No timeline	
<b>Gurnet Road</b>	Increase usage of Gurnet Road by recreational bicyclists	Stripe uniform bike lanes or wider shoulders on both sides of Gurnet road, post bicyclist signage	Short to long term, 1-5 years	

<b>Cooks Corner</b>	Improve connections to stores from neighborhoods in Cooks Corner	Develop right-of-way between, complete sidewalk connections on Gurnet Road, identify pedestrian and bicyclist routes in the Cooks Corner mall parking lot	Medium to long term, 3-5 years	
<b>Bath Road near Gurnet Road intersection</b>	Improve bicyclist conditions and increase bicyclist usage of Cooks Corner	Stripe shoulders and sharrows, install bicycle and pedestrian signage, investigate feasibility of reducing lane width, road diet	Short to long term, 1-5 years	
<b>Cooks Corner</b>	Collaboration with other entities	Support relevant efforts by the Public Works Department, MRRA, Planning Board	No timeline	
<b>Cooks Corner</b>	Improve connections between businesses and public land	Encourage common development, educate developers on Cooks Corner Design Standards	No timeline	
<b>Sills Drive to Brunswick Landing</b>	Create off-street access to Brunswick Landing	Continue connection created by the Brunswick Landing Perimeter Trail	Long term, 5 years	
<b>Jordan Avenue and Bath Road</b>	Create pedestrian connectivity from Jordan Avenue to Brunswick Landing	Consider feasibility of adding crosswalk at the intersection and connection to the BLPT	Medium Term, 3 years	

Purinton Road	Expand Brunswick Landing access	Evaluate feasibility of opening Purinton Road gate	Long term	   
Brunswick Landing Fitness Trail	Create a popular and up to date fitness trail for community use	Support efforts to upgrade and replace equipment	Long term	   
Pleasant Hill Road	Improve safety of bicyclists and pedestrians	Police monitoring, improve visibility of "Watch for Joggers" sign, repainting for wider shoulders	Short to medium term, 1-3 years	     
Durham and Rover Roads	Increase bicyclist and pedestrian use of roads in western Brunswick	Promote traveling through Topsham to reach Durham, encourage use of Greenwood Road to reach Durham Road, improve Route 1 conditions, improve outer Pleasant Street conditions	Short to long term, 1-5 years	   
Woodside Road	Delineated space for bicyclists and pedestrians and vehicle traffic	Educate users on road condition, promote usage of Church Road to Pleasant Hill Road, install signage and stripe shoulders, repave	Short to long term, 1-5 years	    

Rural Roads	Increased usage of Brunswick's best rural roads for recreation	Publish an online guide to rural bicycle and pedestrian routes	Medium term, 3 years	
Middle Bay Road	Increased safety and ease of transit for bicyclists and pedestrians	Trim vegetation, consider feasibility of widening shoulders, adding bicycle lanes	Short to long term, 1-5 years	    
All Town	Reduce impervious areas in established travel corridors & improve watershed health	Take advantage of opportunities to incorporate green infrastructure in bicycle and pedestrian improvement projects	No timeline	
All Town	Consider the needs of bicyclists and pedestrians in all future infrastructure development	Revise the Complete Streets Policy to include FHWA checklist and require interdepartmental review documentation	Medium term, 3 years	
All Town	Use pop-up projects to improve bicycle and pedestrian safety and better measure user needs	Develop, implement, and evaluate pop-up projects, engage relevant stakeholders, Town Council, advise appropriate entity on results of pop-up project	No timeline	
All Town	Improve ability of municipal government to address bicycle and pedestrian needs	Consider hiring a transportation planner	No timeline	
All Town	Improve public knowledge and adherence to traffic laws for bicyclist and pedestrian safety	Develop educational materials, collaborate with relevant groups, BPD, promote Bike to Work weeks, publish a bicycle and pedestrian activity calendar	No timeline	

## **Appendix II**

### **Community Survey Results**

## Bicycle and Pedestrian Surveys

As part of the planning process for the Bicycle and Pedestrian Improvement Plan Update, two surveys on bicycle and pedestrian issues were distributed to attendees of the public meetings and posted on the Town website for online submission. A total of 203 completed surveys were received. Respondents to the survey were by self-selection individuals who were interested in bicycling and pedestrian activities in Brunswick. Data from the bicycle and pedestrian survey represents the experiences and opinions of Brunswick's active bicycle and pedestrian community. Therefore, feedback from these surveys is best used to determine problem areas in Brunswick and prioritize bicycle and pedestrian infrastructure improvement recommendations.

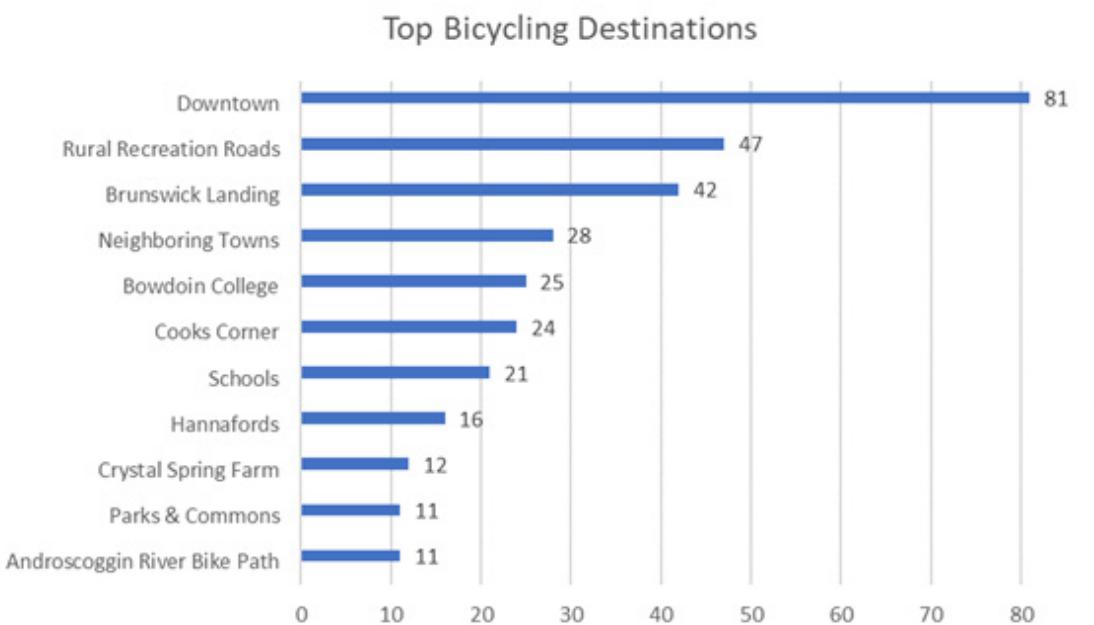
### Bicycle Feedback

- 81% of respondents bicycle occasionally or frequently for health or recreation
- 71% of respondents bicycle occasionally or frequently for errands or business
- 60% of respondents find the area near their home not bike friendly
- 46% of respondents find the area near their work not bike friendly

### Most Popular Bicycling Destinations

The most popular bicycling destination in Brunswick was by far the downtown area. Within the downtown area, cyclists like to visit destinations including the Library, Post Office, restaurants, and Hannaford Supermarket. Other popular utility destinations included schools, Cook's Corner, and Bowdoin College. Recreational destinations were also popular including the rural roads, the Bike Path and local parks and fields. Crystal Spring Farm was a popular destination for utility and recreation.

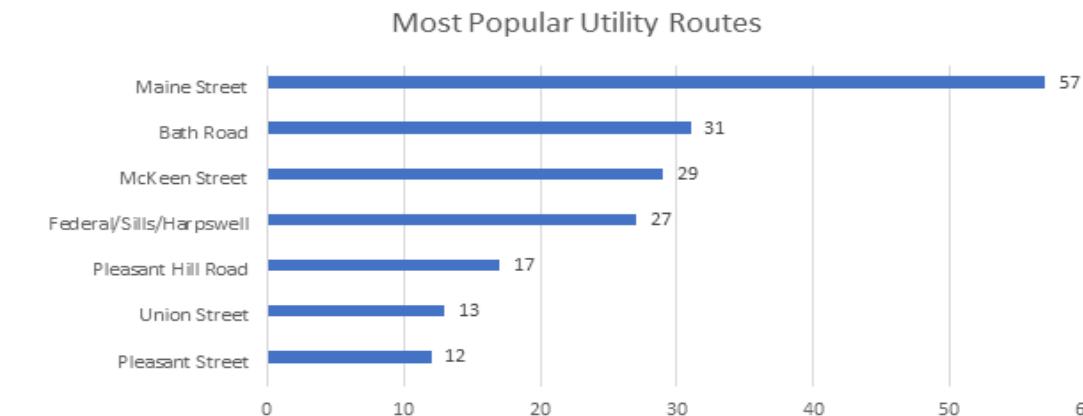
1. Downtown
2. Rural Roads
3. Brunswick Landing
4. Neighboring Towns
5. Bowdoin College
6. Cook's Corner
7. Schools
8. Hannaford Supermarket
9. Crystal Spring Farm
10. Parks/Fields/Town Commons
11. Androscoggin River Bike Path



### Most Popular Utility Routes

The most popular utility routes for bicycling are also popular routes for car travel. Maine Street topped the list of utility routes likely to bring cyclists to the downtown stores and destinations. Bath Road was a popular route to likely reach Cook's Corner, and Pleasant Hill Road was likely popular due to its access to Crystal Spring Farm and other rural roads.

1. Maine Street
2. Bath Road
3. McKeen Street
4. Federal/Sills/Harpswell
5. Pleasant Hill Road
6. Union Street
7. Pleasant Street

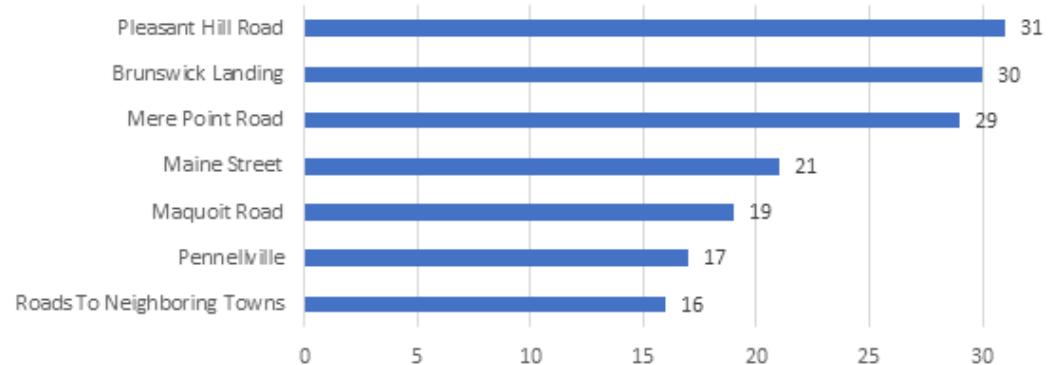


## Most Popular Recreational Routes

The most popular recreational routes are concentrated in the southern rural areas of Brunswick. In addition to southern rural towns, Maine Street and Brunswick Landing were popular recreational routes.

1. Pleasant Hill Road
2. Brunswick Landing
3. Mere Point Road
4. Maine Street
5. Maquoit Road
6. Pennellville
7. Roads to Neighboring Towns

Most Popular Recreation Roads

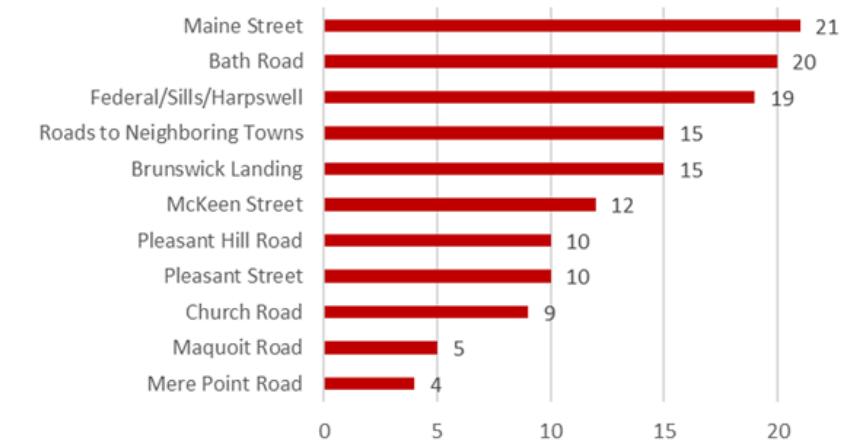


## Top Wish List Routes

Many of the top wish list routes are also top utility or recreational routes. This indicates that many of the most popular roads are also in need of bicycle infrastructure improvements to better the experience of current cyclists and enable use by a wider range of cycling abilities.

1. Maine Street
2. Bath Road
3. Federal/Sills/Harpswell
4. Roads to Neighboring Towns
5. Brunswick Landing
6. McKeen Street
7. Pleasant Hill Road
8. Pleasant Street
9. Church Road
10. Maquoit Road
11. Mere Point Road

## Most Desired Bicycling Routes



## Pedestrian Feedback

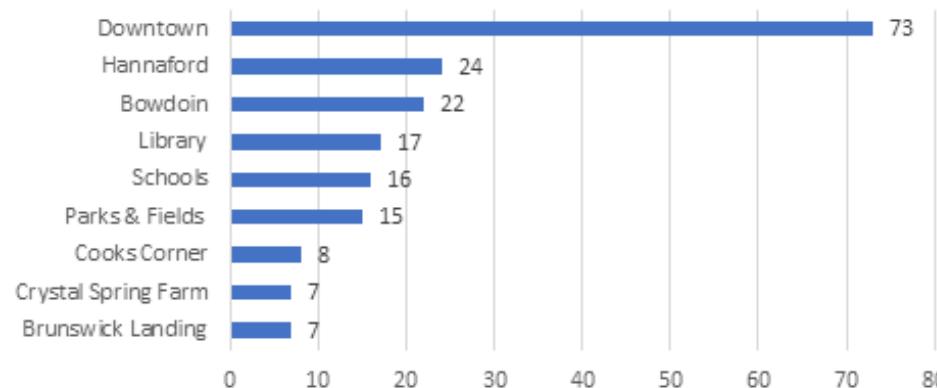
- 92% of survey respondents are pedestrians occasionally or frequently for health or recreation
- 87% of respondents are pedestrians occasionally or frequently for errands or business
- 51% of respondents find the area near their home not pedestrian friendly
- 24% of respondents find the area near their work not pedestrian friendly

## Most Popular Current Pedestrian Destinations

The most popular current pedestrian destinations were heavily concentrated in the downtown. There was significant overlap between bicycle and pedestrian destinations, and pedestrians as well sought out Crystal Spring Farm, parks and fields, and the Cook's Corner and Brunswick Landing area.

1. Downtown
2. Hannaford
3. Bowdoin College
4. Curtis Memorial Library
5. Schools
6. Parks/Fields/Town Commons
7. Cook's Corner
8. Crystal Spring Farm
9. Brunswick Landing

### Current Pedestrian Destinations

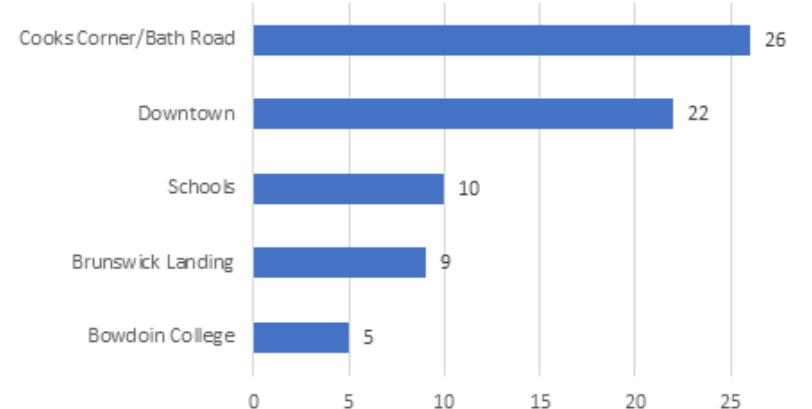


### Most Desired Pedestrian Destinations

Cook's Corner topped the list of desired pedestrian destinations, and Brunswick Landing was also a highly desired destination. Other destinations suggested the importance of expanding connectivity to the downtown region.

1. Cook's Corner/Bath Road
2. Downtown
3. Schools
4. Brunswick Landing
5. Bowdoin College

### Desired Pedestrian Destinations



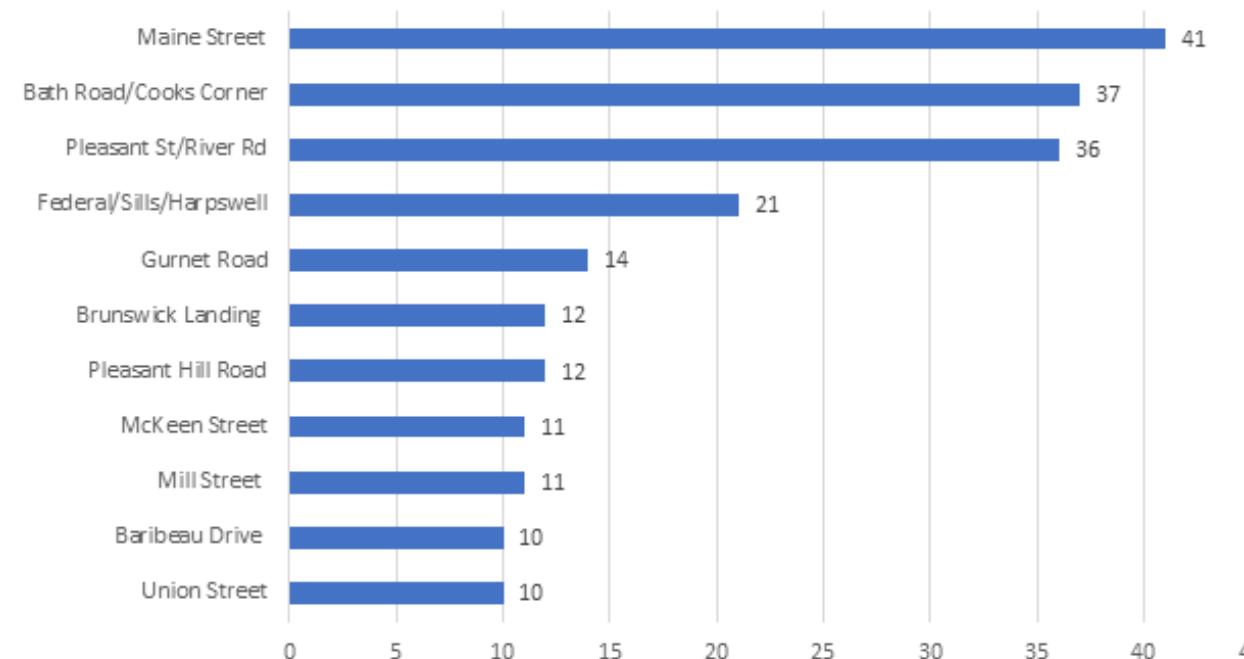
### Top Streets to Improve Pedestrian Infrastructure

The top streets named to improve pedestrian infrastructure connect to the most popular current and desired destinations. Some streets overlapped with streets named frequently in the bicycle survey including Maine Street and McKeen Street. Other streets were new mentions from the bicycle survey including Baribeau Drive and Gurnet Road.

1. Maine Street

2. Bath Road/Cook's Corner
3. Outer Pleasant Street/River Road
4. Federal/Sills/Harpswell
5. Gurnet Road
6. Brunswick Landing
7. Pleasant Hill Road
8. McKeen Street
9. Mill Street
10. Baribeau Drive
11. Union Street

### Streets to Improve Pedestrian Facilities



## Appendix III

### Priority Matrix

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
<b>Engineering:</b>	<b>Creating safe and convenient places to ride, walk, and park.</b>				
1)	Existing Sidewalks, <i>Planning Dept.</i>	X			
2)	Existing Bike Lanes, <i>Planning Dept.</i>	X			
3)	MDOT roads, <i>MEGIS</i>	X			
4)	MDOT Urban Compact Limits, <i>MEGIS</i>	X			
5)	Top Wish List Routes				
a)	(21) Maine Street				X
b)	(20) Bath Road				X
c)	(19) Federal/Sills/Harpswell				X
d)	(15) Brunswick Landing			X	
e)	(15) Roads to Neighboring Towns			X	
f)	(12) McKeen Street		X		
g)	(10) Pleasant Hill Road		X		
h)	(10) Pleasant Street		X		
i)	(9) Church Road		X		
j)	(5) Maquoit Road		X		
k)	(4) Mere Point Road		X		
Note: (*) represents number of respondents from the public bicycle and pedestrian survey.					
6)	Most Desired Pedestrian Destinations				
a)	(26) Cooks Corner/Bath Road			X	
b)	(22) Downtown			X	
c)	(10) Schools		X		
d)	(9) Brunswick Landing		X		
e)	(5) Bowdoin College		X		
Note: (*) represents number of respondents from the public bicycle and pedestrian survey.					
7)	Top Streets to Improve Pedestrian Infrastructure				
a)	(41) Maine Street				X
b)	(37) Cooks Corner/Bath Road			X	
c)	(36) Outer Pleasant Street/River Road				X
d)	(21) Federal/Sills/Harpswell		X		
e)	(14) Gurnet Road		X		
f)	(12) Brunswick Landing		X		
g)	(12) Pleasant Hill Road		X		
h)	(11) McKeen Street		X		
i)	(11) Mill Street		X		

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
j)	(10) Baribeau Drive		X		
k)	(10) Union Street		X		

Note: (\*) represents number of respondents from the public bicycle and pedestrian survey.

The analysis was separated into three (3) graduated colors: red, yellow and green. Each color represents a scale of opportunities for improving bicycle and pedestrian conditions. The baseline data is derived from public stakeholder mapping and survey results. (See Appendix II for survey results and analysis.)

The Town of Brunswick Planning Department created the data for existing sidewalks and bike lanes. The Maine Office of GIS (MEGIS) provided the data for MDOT roads and urban compact limits.

To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The existing sidewalk, existing bike lane, MDOT road, and MDOT urban compact limit layers received rankings of 'reduced priority' (-1 point) because they represent existing infrastructure in the town.

Top wish list routes identify roads the public wished were better for bicycle travel. Many of the top wish list routes are also top utility or recreational routes indicating that many of the most popular roads need bicycle infrastructure improvements. Maine Street, Bath Road, and Federal Street/Sills Drive/Harpswell Road accounted for 43% of public responses and was assigned the ranking 'very high priority' (+3 points).

Cooks Corner/Bath Road topped the list of desired pedestrian destinations, and Brunswick Landing was also a highly desired destination. Cooks Corner/Bath Road and Brunswick Landing accounted for 67% of public responses in this category. Other destinations suggested the importance of expanding connectivity to the downtown region.

Maine Street and Cooks Corner/Bath Road were the top streets named to improve pedestrian infrastructure and connect to the most popular current and desired destinations. Some streets overlapped with streets named frequently in the bicycle survey including Maine Street and McKeen Street. Other streets were new mentions from the bicycle survey including Baribeau Drive and Gurnet Road. Overall, Maine Street, Cooks Corner/Bath Road, and Outer Pleasant St/River Road accounted for over half of the responses.

Bicycle and pedestrian routes developed from public stakeholder meetings were intersected with the map layers. Each intersected location on the bicycle and pedestrian routes was summed with the previously assigned priority values of each individual layer to calculate a total priority ranking. To ensure accuracy of the analysis, the numerical values of the total

priority ranking were examined to account for non-uniform distributions, giving an unequal class width with varying frequency of observations per class.

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
<b>Education:</b>	<b>Giving people of all ages and abilities the skills and confidence to ride and/or walk <u>to school</u>.</b>				
1) a)	Schools (1/8 Mile Buffer), MEGIS				X
b)	Schools (1/4 Mile Buffer), MEGIS			X	
c)	Schools (1/2 Mile Buffer), MEGIS		X		

The analysis was separated into three (3) graduated colors: red, yellow and green. Each color represents a scale of opportunities for improving bicycle and pedestrian conditions. The baseline data is derived from public stakeholder mapping and survey results. (See Appendix II for survey results and analysis.)

The Maine Office of GIS (MEGIS) provided the baseline data for schools in the project area. The Town of Brunswick Planning Department created half, quarter, and eighth-mile buffers around schools to account for bikeability and walkability. Goals include improving the safety and security of routes to school, increasing the usage of bike and pedestrian modes, and improving the connections between schools and currently unconnected neighborhoods.

To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The school layer received rankings based on the buffer distance of the. The eighth-mile buffer was ranked 'very high priority' (+3 points), quarter-mile buffer was ranked 'high priority' (+2 points), and the half-mile buffer was ranked 'increased priority' (+1 point).

Bicycle and pedestrian routes developed from public stakeholder meetings were intersected with the map layers. Each intersected location on the bicycle and pedestrian routes was summed with the previously assigned priority values of each individual layer to calculate a total priority ranking. To ensure accuracy of the analysis, the numerical values of the total priority ranking were examined to account for non-uniform distributions, giving an unequal class width with varying frequency of observations per class.

Bike / Pedestrian Matrix		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
<b>Encouragement:</b>	<b>Creating a strong bike and pedestrian culture that welcomes and celebrates biking and walking.</b>				
1) a)	Recreation Center (1/8 Mile Buffer), Planning Dept.				X

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
b)	Recreation Center (1/4 Mile Buffer), <i>Planning Dept.</i>			X	
c)	Recreation Center (1/2 Mile Buffer), <i>Planning Dept.</i>		X		
2) a)	Public Parks (1/8 Mile Buffer), <i>Planning Dept.</i>				X
b)	Public Parks (1/4 Mile Buffer), <i>Planning Dept.</i>			X	
c)	Public Parks (1/2 Mile Buffer), <i>Planning Dept.</i>		X		
3) a)	Public Trails (1/8 Mile Buffer), <i>BTLT</i>				X
b)	Public Trails (1/4 Mile Buffer), <i>BTLT</i>			X	
c)	Public Trails (1/2 Mile Buffer), <i>BTLT</i>		X		
4) a)	Paper Street Bisected Route (1/8 Mile Buffer), <i>Planning Dept.</i>				X
b)	Paper Street Bisected Route (1/4 Mile Buffer), <i>Planning Dept.</i>			X	
c)	Paper Street Bisected Route (1/2 Mile Buffer), <i>Planning Dept.</i>		X		
5)	Most Popular Bicycling Destinations				
a)	(81) Downtown				X
b)	(47) Rural Roads			X	
c)	(42) Brunswick Landing			X	
d)	(28) Neighboring Towns		X		
e)	(25) Bowdoin College		X		
f)	(24) Cooks Corner		X		
g)	(21) Schools		X		
h)	(16) Hannaford		X		
i)	(12) Crystal Spring Farm		X		
j)	(11) Public Parks		X		
k)	(11) Androscoggin River Bike Path		X		
Note: (*) represents number of respondents from the public bicycle and pedestrian survey.					
6)	Most Popular Recreational Routes				
a)	(31) Pleasant Hill Road				X
b)	(30) Brunswick Landing				X
c)	(29) Mere Point Road				X
d)	(21) Maine Street			X	
e)	(19) Maquoit Road		X		
f)	(17) Pennellville Road		X		

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
g)	(16) Roads to Neighboring Towns		X		
Note: (*) represents number of respondents from the public bicycle and pedestrian survey.					
7)	Most Popular Current Pedestrian Destinations				
a)	(73) Downtown				X
b)	(24) Hannaford				X
c)	(22) Bowdoin College				X
d)	(17) Curtis Memorial Library				X
e)	(16) Schools				X
f)	(15) Public Parks				X
g)	(8) Cooks Corner			X	
h)	(7) Crystal Spring Farm			X	
i)	(7) Brunswick Landing			X	
Note: (*) represents number of respondents from the public bicycle and pedestrian survey.					
The analysis was separated into three (3) graduated colors: red, yellow and green. Each color represents a scale of opportunities for improving bicycle and pedestrian conditions. The baseline data is derived from public stakeholder mapping and survey results. (See Appendix II for survey results and analysis.)					
The Town of Brunswick Planning Department created the baseline data for the recreation center, public park, and paper street layers. The Brunswick Topsham Land Trust (BTLT) provided the layer for public trails. The town created half, quarter, and eighth-mile buffers around the layers to account for bikeability and walkability.					
The recreation center, public park, and paper street layers received rankings based on the buffer distance. Each eighth-mile buffer was ranked 'very high priority' (+3 points), quarter-mile buffer was ranked 'high priority' (+2 points), and the half-mile buffer was ranked 'increased priority' (+1 point).					
Most popular bicycling destinations represent places individuals currently bike to or think are important to be conveniently accessible by bike. The public survey showed an overwhelming majority believed Downtown was the most popular bicycling destination. Other popular destinations included schools, Cooks Corner, Brunswick Landing, and Bowdoin College. Recreational destinations were also popular including the rural roads, the Bike Path and public parks. Crystal Spring Farm was also a popular destination for utility and recreation.					
Most popular recreational routes identify roads most important to individuals for recreational bicycling. According to the survey results, the most popular recreational routes were concentrated in the southern rural areas of Brunswick. Pleasant Hill Road (31),					

Brunswick Landing (30), and Mere Point Road (29) accounted for the 55% of public responses.

Most popular current pedestrian destinations represent locations the public currently walks to or thinks are important to be conveniently assessable by foot. The public survey showed the most popular current pedestrian destinations were heavily concentrated in the downtown planning area. There was significant overlap between bicycle and pedestrian destinations, including Crystal Spring Farm, public parks, Cooks Corner, and Brunswick Landing.

Bicycle and pedestrian routes developed from public stakeholder meetings were intersected with the map layers. Each intersected location on the bicycle and pedestrian routes was summed with the previously assigned priority values of each individual layer to calculate a total priority ranking. To ensure accuracy of the analysis, the numerical values of the total priority ranking were examined to account for non-uniform distributions, giving an unequal class width with varying frequency of observations per class.

Local streets may not be considered due to local public stakeholder meeting — opportunities for connections to pedestrian and/or bicycle destinations (trip ends) should be evaluated for facilities that advance the encouragement sections priorities and goals.

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
<b>Enforcement &amp; Evaluation:</b>	<b>Ensuring safe roads for all users and planning for bicycling and walking as a viable option.</b>				
1)	Crash Locations (50-meter buffer), <i>Police Department</i>			X	
2)	Safety Concerns (50-meter buffer, points and lines derived from stakeholder comments), <i>Planning Dept.</i>			X	
3)	Pilot Sites (50-meter buffer), <i>Planning Dept.</i>	X			
4)	Most Popular Utility Routes				
a)	(57) Maine Street				X
b)	(31) Bath Road				X
c)	(29) McKeen Street			X	
d)	(27) Federal/Sills/Harpswell			X	
e)	(17) Pleasant Hill Road		X		
f)	(13) Union Street		X		

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
g)	(12) Pleasant Street			X	

Note: (\*) represents number of respondents from the public bicycle and pedestrian survey.

The analysis was separated into three (3) graduated colors: red, yellow and green. Each color represents a scale of opportunities for improving bicycle and pedestrian conditions. The baseline data is derived from public stakeholder mapping and survey results. (See Appendix II for survey results and analysis.)

The Brunswick Police Department provided the baseline data for bicycle and pedestrian crash locations. The Town of Brunswick Planning Department added a 50-meter buffer around each crash location to account for the possibility of a type I error in the spatial analysis. Crash locations are based on the description of reported locations and may not be the exact location. The Planning Department mapped points and lines of safety concerns derived from public stakeholder comments. Again, a 50-meter buffer was added to each safety concern location to account for the possibility of a type I error in the spatial analysis. The Planning Department provided the data from two (2) pilot sites, with 50-meter buffers at 1) Union Street behind Town Hall (85 Union Street) and 2) Sills Drive and Bath Road.

Most popular utility routes represent the roads most important to the public for recreational bicycling and walking. The most popular utility routes for bicycling are also popular routes for car travel. The public survey showed an overwhelming majority stated Maine Street was the most popular utility route to bring bicyclists to the downtown stores and destinations. Additionally, Bath Road was a popular route for access to Cooks Corner, and Pleasant Hill Road was likely popular due to its access to Crystal Spring Farm and other rural roads.

To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The crash location and safety concern layers received a ranking of 'high priority' (+2 points). The pilot sites layer received a ranking of 'reduced priority' (-1 point).

Bicycle and pedestrian routes developed from public stakeholder meetings were intersected with the map layers. Each intersected location on the bicycle and pedestrian routes was summed with the previously assigned priority values of each individual layer to calculate a total priority ranking. To ensure accuracy of the analysis, the numerical values of the total priority ranking were examined to account for non-uniform distributions, giving an unequal class width with varying frequency of observations per class.

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
<b>Equity, Diversity &amp; Inclusion (EDI)</b>	<b>Achieve the vision of a bike and pedestrian friendly Brunswick for everyone.</b>				
1)	Low Income Population, <i>Living Atlas American Community Survey (ACS)</i>				X
2)	Elderly Population, <i>Living Atlas American Community Survey (ACS)</i>				X
3)	Affordable Housing, <i>Planning Dept.</i>				X
4)	Bus Stop Locations and Bus Routes, <i>Metro Breez and Brunswick Explorer (1/2 mile buffer)</i> , <i>Planning Dept.</i>			X	
<p>The analysis was separated into three (3) graduated colors: red, yellow and green. Each color represents a scale of opportunities for improving bicycle and pedestrian conditions. The baseline data is derived from public stakeholder mapping and survey results. (See Appendix II for survey results and analysis.)</p> <p>The Living Atlas American Community Survey (ACS) provided the baseline data for the low-income population area. If 13.5% or more of the population in each respective census tract had an income in the past 12 months below the federal poverty level, the area was considered low income. The ACS provided data on the elderly population as well, and Census tracts with 30% or more of their population above the age of 65 were designated elderly. The Town of Brunswick Planning Department combined subsidized housing and mobile home locations to derive the affordable housing layer. The Department created a bus stop location and route layer, and a half-mile buffer around the stops for the Metro Breez and the Brunswick Explorer accounted for walkability.</p> <p>To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The low-income population, elderly population, and affordable housing layers received a ranking of 'very high priority' (+3 points). The bus stop locations and routes layer received a ranking of 'high priority' (+2 points).</p> <p>Bicycle and pedestrian routes developed from public stakeholder meetings were intersected with the map layers. Each intersected location on the bicycle and pedestrian routes was summed with the previously assigned priority values of each individual layer to calculate a total priority ranking. To ensure accuracy of the analysis, the numerical values of the total priority ranking were examined to account for non-uniform distributions, giving an unequal class width with varying frequency of observations per class.</p>					

Bicycle & Pedestrian Matrix Scoring		Reduced Priority (-1)	Increased Priority (+1)	High Priority (+2)	Very High Priority (+3)
<b>Environment:</b>	<b>Attempt to mitigate any environmental concerns or issues.</b>				
1)	Urban Impaired Stream Watersheds, <i>Maine DEP</i>			X	
2) a)	Public Conservation Land (1/8 Mile Buffer), <i>BTLT</i>				X
b)	Public Conservation Land (1/4 Mile Buffer), <i>BTLT</i>			X	
c)	Public Conservation Land (1/2 Mile Buffer), <i>BTLT</i>		X		
<p>The analysis was separated into three (3) graduated colors: red, yellow and green. Each color represents a scale of opportunities for improving bicycle and pedestrian conditions. The baseline data is derived from public stakeholder mapping and survey results. (See Appendix II for survey results and analysis.)</p> <p>The Maine Department of Environmental Project (DEP) provided the data for urban impaired stream watersheds. The Brunswick-Topsham Land Trust provided the baseline data for public conservation land. The Town of Brunswick Planning Department created half, quarter, and eighth-mile buffers around the public conservation lands accounting for bike and walkability.</p> <p>To develop the priority analysis, each layer of the map was assigned a ranking ranging from (-1 point) meaning 'reduced priority' to (+3 points) depicting 'very high priority'. The urban impaired stream watershed layer received a ranking of 'increased priority' (+1 point) to encourage green infrastructure.</p> <p>The public conservation land layers received rankings based on the buffer distance of the layer. The eighth-mile buffer was ranked 'very high priority' (+3 points), quarter-mile buffer was ranked 'high priority' (+2 points), and the half-mile buffer was ranked 'increased priority' (+1 point).</p> <p>Bicycle and pedestrian routes developed from public stakeholder meetings were intersected with the map layers. Each intersected location on the bicycle and pedestrian routes was summed with the previously assigned priority values of each individual layer to calculate a total priority ranking. To ensure accuracy of the analysis, the numerical values of the total priority ranking were examined to account for non-uniform distributions, giving an unequal class width with varying frequency of observations per class.</p>					

## **Appendix IV**

### **Sources of Funding**

# Sources of Funding

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 follows 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 V**

### **Benefits of Bicycle and Pedestrian Infrastructure**

# Benefits of 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 Young Professionals

As the state with the oldest median age in the nation, Maine is in particular need of young workers, especially college graduates or those with technical skills in traditional and emerging economic sectors. Cities and towns that are designed for bicyclists and pedestrians prove to be effective at recruiting these types of skilled employees who will strengthen and diversify the local and regional economy. These bicycle and pedestrian-friendly communities attract those desirous of establishing a professional career while maintaining a healthy lifestyle and being able to enjoy the increased vitality and social interaction present in such communities. Attracting a young and skilled workforce can increase human capital and talent in a community, leading to greater innovation, knowledge spillovers, thicker labor markets, and economic growth.

### 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.

### 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 spill-

overs 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.

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## 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 much carbon output. Studies show that CO2 output per household is highest in the countryside while cities with dense growth demonstrate the lowest CO2 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.

### References

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## Appendix VI

### Brunswick Complete Streets Policy

## Appendix G - Complete Streets Policy

### I. Vision Statement

The Town of Brunswick (the “Town”) strives to be a community in which all residents and visitors, regardless of their age, ability, or financial resources, can safely and efficiently use the public right-of-way to meet their transportation needs regardless of their preferred mode of travel. Promoting pedestrian, bicycle, and public transportation travel reduces negative environmental impacts, promotes healthy living, advances the well-being of travelers, supports the goal of compact development, and meets the needs of diverse populations.

The Town’s street system design will be consistent with, and supportive of, local neighborhoods, the historic downtown, Bowdoin College, and the Route 1 Corridor, recognizing that transportation needs vary and must be balanced, flexible, safe, and cost effective.

### II. Policy Statement

- A. It is the policy of the Town of Brunswick to plan, design, construct, operate, and maintain an appropriate and integrated transportation system that meets the needs of motorists, pedestrians, bicyclists, wheelchair users, transit vehicles, freight haulers, emergency responders, and residents of all ages and abilities. Those involved in the planning and design of projects within the public right-of-way will give consideration to all users and modes of travel at the start of planning and design work.
- B. Street improvements shall be viewed as opportunities to create safer, more accessible streets for all users. This shall apply to new construction, reconstruction, and rehabilitation.
- C. Implementation of this policy shall consider opportunities for enhancing the context and character of the surrounding built and natural environments. Transportation facilities, including roads, should be adapted to fit and enhance the character of surrounding neighborhoods.
- D. Special attention should be given to projects that enhance the overall transportation system and its connectivity. Specifically, high priority should be given to:
  - 1. corridors providing primary access to one or more significant destinations such as parks or recreation areas, schools, shopping/commercial areas, public transportation or employment centers;
  - 2. corridors serving a relatively high number of users of non-motorized transportation modes;
  - 3. corridors providing important continuity or connectivity links to existing pedestrian or bicycle networks;
  - 4. projects identified in regional or local thoroughfare, bicycle and pedestrian plans.

### III. Project Relevancy

- A. Projects covered by this policy are those that provide an opportunity to include pavement markings and signs; street and sidewalk lighting; sidewalk and pedestrian improvements; Americans with Disabilities Act Title VI compliance; transit accommodations; bicycle accommodations; and streetscapes that appeal to and promote pedestrian use.
- B. Maintenance projects and activities, which include repaving, typically do not provide an opportunity to increase roadway width, add sidewalks, or otherwise add additional assets. These projects may offer the opportunity to improve conditions with signage, restriping, reducing travel lane widths, or other non-widening options. System preservation projects should not decrease the safety for any road users.

### IV. Policy Exceptions

- A. Projects that meet one or more of the following criteria are exempt from this policy:
  - 1. accommodation of a street use prohibited by law;
  - 2. require more space than is physically available; or
  - 3. require that the project would be located where both current and future demand is not evident; or
  - 4. create an increase in project costs beyond the approved budget; or
  - 5. would have adverse impacts on environmental resources such as streams, wetlands, floodplains, or on historic structures or sites above and beyond the impacts of currently existing infrastructure.
- B. Ordinary maintenance activities such as mowing, snowplowing, sweeping, spot repair, joint and crack sealing or pothole filling do not require that elements of this policy be applied beyond the scope of that maintenance activity.
- C. Street projects may exclude the development of sidewalks in areas falling outside those identified as appropriate for sidewalks on the basis of an adopted sidewalk policy or other plans.

### V. Design Criteria

- A. The Town, through its Public Works and its Planning and Development departments, shall utilize design criteria, standards, and guidelines based upon recognized best practices in street design, construction, and operation. To the greatest extent possible, the Town shall follow the standards with particular emphasis on pedestrian and bicycle markings and wayfinding signage.
- B. Resources to be referenced in developing these standards shall include, but not necessarily be

limited to, the latest editions of:

1. American Association of State Highway Transportation Officials ("AASHTO") policy on Geometric Design of Highways and Streets, Guide to Planning, Designing, and Operating Pedestrian Facilities, and Guide to Development of Bicycle Facilities;
2. Institute of Transportation Engineers ("ITE") Designing Walkable Urban Thoroughfares: A Context Sensitive Approach;
3. National Association of City Transportation Officials ("NACTO") Urban Bikeway Design Guide;
4. U.S. Access Board Public Right-of-Way Accessibility Guidelines;
5. Highway Capacity Manual and Highway Safety Manual; and
6. The Manual of Uniform Traffic Control Devices.

C. The Town may consider innovative or non-traditional design options that provide a comparable level of safety and utility for users as those listed above.

## VI. Policy Administration

- A. This policy shall be administered by the Town Manager, in consultation with the Town Engineer and Department of Planning and Development. The Town Manager's determination as to whether a project complies with this policy shall be final.
- B. The Brunswick Bicycle and Pedestrian Advisory Committee ("BBPAC"), the Town appointed committee, shall be briefed on potential future projects covered by this policy when those projects are included in the Town's capital improvement program ("CIP"). This will allow BBPAC an opportunity to provide its views regarding complete streets issues early in the planning and design process.
- C. BBPAC shall also be notified, as early in the development process as practical, of projects not included in the CIP. If BBPAC determines that a project, with a value greater than \$100,000, is not consistent with this policy, BBPAC may appeal to the Town Manager or his designee. Such appeal shall be made within thirty (30) days of notification. The Town Manager shall respond to BBPAC's appeal within thirty (30) days of that appeal. Projects with an estimated value equal to or less than \$100,000 are not subject to appeal.

## VII. Intergovernmental Cooperation

- A. The Town will cooperate together and with other transportation agencies including the Maine Department of Transportation ("MDOT") to ensure the principles and practices of complete streets are embedded within their planning, design, construction, and maintenance activities.

## VIII. Performance and Reporting

- A. BBPAC shall monitor compliance with the policy and make recommendations for its improvement. BBPAC shall report to the Town Council on an annual basis on transportation projects undertaken within the prior year and planned within the coming year highlighting the extent to which each of these projects has met or will meet the objectives of this policy.

## IX. Emergencies

- A. To meet a public emergency affecting public safety, public property, or public convenience, the Town Manager may waive any portion of this policy.

Proposed to Town Council: August 15, 2016  
Adopted by Town Council: August 15, 2016

# **Appendix VII**

Results of Walk Audit  
Brunswick Safe Routes to School

# Results of Walk Audit

## For Brunswick Safe Routes to School Community Group

January 11, 2019



### Overview

Representatives from the Brunswick Safe Routes to School (SRTS) Community Group invited staff of the Bicycle Coalition of Maine to conduct a walking audit of routes to school from the Bouchard Drive neighborhood to the Harriet Beecher Stowe, Coffin and Jr. High schools. Parents and community members participated in the walking audit that took place on November 29, 2018.

### Need and Purpose

Brunswick schools have a long history of promoting walking and biking to school and many children and their families walk to school on a daily basis year round. As a result of the Heads Up Pedestrian Safety Forums held in Brunswick in the spring of 2018, a group of parents with concerns about speeding cars not stopping for students in crosswalks near the Harriet Beecher Stowe (HBS) Elementary School, emerged and formed a new **Brunswick Safe Routes to School (SRTS) Community Group**.

One of the goals of the Brunswick SRTS Group is to conduct walking audits of the routes to school from several of the area neighborhoods and to gather input from parents about safety concerns along those routes. The walking audit held on November 29, 2018 was used to gather input and comments about locations of concern and to discuss possible strategies to improve pedestrian safety and reduce motor vehicle speeds along the routes to school.

This report will provide the notes and comments from the walking audit, an annotated map of the walking routes and some ideas on possible ways to increase safety along those routes.

### Notes & Comments Gathered During Walking Audit

#### General Comments

Many children walk to HBS, Coffin & the Jr High from this neighborhood, therefore it is imperative that school routes are safe and accessible. At this time of year, snow plowing should be a priority along these routes.

#### Locations of Concern for Bouchard Neighborhood to HBS School

##### 1. Look into "paper street" between houses on Bouchard through to Hennessey

At 21 Bouchard possibility to make a designated path, with fences on both sides of path to alleviate concern about scary dog off leash in adjacent yard.

##### 2. End of Hennessey before intersects with Stanwood

Crosswalk is located at edge of business driveway, crossing to a short sidewalk on south side of Hennessey that leads to Stanwood. This crosswalk is not very visible and is partially in a driveway.

There is no signage to warn drivers coming in and out of the business parking lot and the drivers turning from Stanwood onto Hennessey that there is a crosswalk.

### 3. Intersection of Hennessey Ave & Stanwood

There is no signage on Stanwood to warn drivers of the ped crossing at this intersection.

### 4. Intersection of Weymouth & Stanwood

There is no crosswalk across Stanwood for people coming from Weymouth. Currently there are students who walk to school from Weymouth Street and need to cross Stanwood to get to the sidewalk. Could the reduced speed limit sign be before Weymouth Street?

### 5. Entrance to HBS from McKeen

It is a very wide driveway entrance, and the curved corner and low sidewalk make for low visibility at the crosswalk.

## Locations of Concern for Coffin & Jr High Schools to Bouchard Neighborhood

### 1. Columbia Ave at entrance to Jr High & Coffin Schools

Street is wide & straight with no striping which encourages speeding. Consider painting a center line and fog lines to narrow the lanes, slow traffic and add space for bicyclists and other road users.

### 2. On McKeen between Stanwood and Baribeau

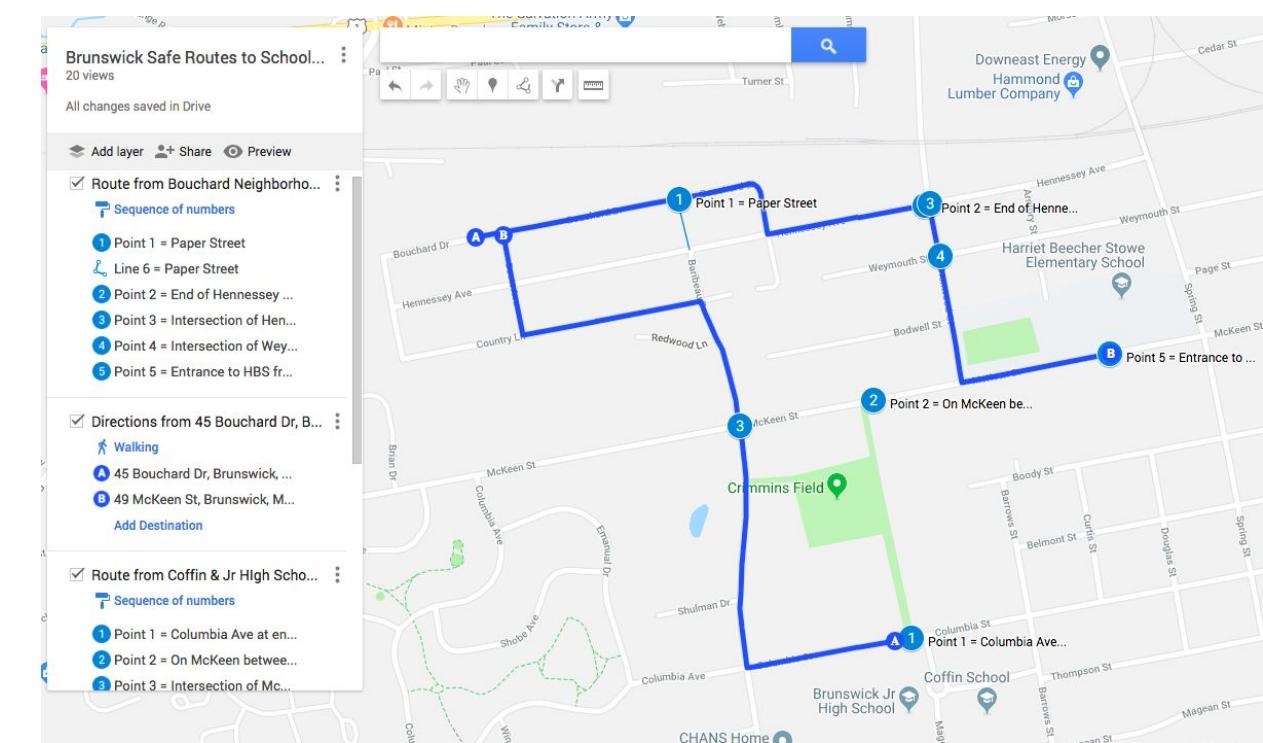
A crosswalk exists that does not connect to a sidewalk on northside of McKeen (crosswalk to nowhere?). Investigate the necessity of this crosswalk and make it MDOT compliant if it remains.

### 3. Intersection of McKeen & Baribeau

This is a very busy intersection for both cars and school buses trying to enter either road, and for pedestrians trying to cross the road. Parents have seen numerous “near-misses” when cars fail to stop for children crossing the street. In addition, there isn’t a sidewalk on the stretch of Baribeau towards the church & retirement home and into the neighborhood. There are plenty of destinations in that area that could be served by a sidewalk.

## Map of Walking Routes

[View the annotated Map here.](#)



## Possible Mitigations for Brunswick Routes to School

This report provides observations and a series of possible mitigations based on the site visit, examinations of aerial photos, and conversations with stakeholders to improve pedestrian safety for students walking to school and other pedestrians in Brunswick. The tables below give examples and may be used as a worksheet for mitigation planning.

Objectives*	Potential Actions	Priority	Time Frame	Responsible Party	Current Status
Increase visibility of crosswalks	<ul style="list-style-type: none"> <li>➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)</li> <li>➢ Ensure that crosswalks are painted at least annually as early as possible in the spring</li> <li>➢ Upgrade all crosswalks to have high visibility crosswalk markings</li> <li>➢ Evaluate the appropriateness of utilizing bollards on the white line for some crosswalks in this area</li> <li>➢ Consider RRFB installation</li> </ul>		Short	MaineDOT Town of Brunswick	
Increase visibility of crosswalks	<ul style="list-style-type: none"> <li>➢ Evaluate current lighting and consider upgrading</li> </ul>		Medium	MaineDOT Town of Brunswick	
Increase visibility of crosswalks	<ul style="list-style-type: none"> <li>➢ Consider raised tabletop crossings to slow and calm traffic</li> </ul>		Long	MaineDOT Town of Brunswick	

Objectives*	Potential Actions	Priority	Time Frame	Responsible Party	Current Status
Improve pedestrian safety at the crosswalk	<ul style="list-style-type: none"> <li>➢ Complete a traffic analysis of this intersection</li> <li>➢ Review need for additional signage</li> <li>➢ Consider RRFB installation</li> </ul>		Short	MaineDOT Town of Brunswick	

	<ul style="list-style-type: none"> <li>➢ Evaluate ability to shorten crossing by making perpendicular</li> </ul>				
Improve pedestrian safety at the crosswalk	<ul style="list-style-type: none"> <li>➢ Consider installing curb extensions</li> </ul>	Medium /Long	MaineDOT Town of Brunswick		

Objectives*	Potential Actions	Priority	Time Frame	Responsible Party	Current Status
Calm and slow traffic	<ul style="list-style-type: none"> <li>➢ Complete a traffic analysis confirming speeding issue</li> <li>➢ Install dynamic speed message board</li> <li>➢ Increase enforcement actions</li> </ul>		Short	MaineDOT Town of Brunswick	
Calm and slow traffic	<ul style="list-style-type: none"> <li>➢ Evaluate road design and consider horizontal (e.g. curb extensions, other road narrowing) or vertical (e.g. speed tables) calming measures</li> </ul>		Medium	MaineDOT Town of Brunswick	

Objectives*	Potential Actions	Priority	Time Frame	Responsible Party	Current Status
Improve Driver Yield Behavior	<ul style="list-style-type: none"> <li>➢ Upgrade signage at crosswalks</li> <li>➢ Consider RRFB</li> <li>➢ Add yield roadway markings</li> <li>➢ Increase enforcement actions</li> </ul>		Short	MaineDOT Town of Brunswick	

# **Appendix VIII**

## Newspaper Coverage of Stakeholder Meetings

## Brunswick using public input to update bike-ped improvement plan

pressherald.com/2020/01/22/brunswick-using-public-input-to-update-bike-ped-improvement-plan/

By Alex Lear

January 22, 2020



Jim Tasse, at right, assistant director of the Bicycle and Pedestrian Coalition of Maine, chats with a Brunswick resident Jan. 16 during a bicycle and pedestrian public input gathering session. Participants were asked to mark up maps of the town with improvements they would like to see made. *Alex Lear / The Forecaster*

BRUNSWICK — Despite a storm that shut down many town operations Jan. 27, about 25 stalwart residents braved the elements to attend the second of four public input sessions geared toward helping the town update its Bicycle and Pedestrian Improvement Plan.

The first meeting, held Jan. 8, covered Brunswick's downtown, schools, Pleasant Street, Bowdoin College and surrounding neighborhoods. Last week's meeting delved into rural roads and trails. Brunswick Landing and Cook's Corner will be the focus of the third gathering at Southern Maine Community College at Brunswick Landing, 29 Sewall St., at 6:30 p.m. Monday, Jan. 27.

The meetings will culminate at 5 p.m. Feb. 27 with a town-wide meeting at Brunswick Town Hall, 85 Union St., at which Town Planner Jared Woolston plans to discuss the feedback culled about the areas of town that need safety and access improvements for bicyclists and pedestrians, as well as parts they already enjoy.

Brunswick last updated its Bicycle and Pedestrian Improvement Plan in 2004 and, with the Comprehensive Plan undergoing an update, the town looks to revise it accordingly. A framework is on the committee's page at [brunswickme.org](http://brunswickme.org), but "it's pretty rough right now," Woolston said. "This process should refine ... what the public thinks is important, and it should help us prioritize what should be in the plan."

Attendees at the meeting broke into small groups to review maps of Brunswick's rural trails and roads, mark areas they frequent and those in need of better conditions. The town will analyze that information, as well as worksheets the participants filled out, to determine common areas of concern.

"That will go toward helping the town prioritize where (financial) resources should be directed," said Jim Tasse, assistant director of the Bicycle and Pedestrian Coalition of Maine. "Not only are you impacting the decisions of your local policymakers, but you're also setting the town up for success with state and larger grant programs. If you don't have a plan, it's very difficult to apply for money to get stuff built."

Going over some of the input gleaned, which he will present to the town's Bicycle & Pedestrian Committee, Woolston said pedestrians walk on the shoulder, but are asking for better trails and trail connectivity. Brunswick already has many trail systems, but many aren't well connected, he explained.

Many bicyclists prefer longer rides with scenic views, such as along Bunganuc, Maquoit, Mere Point and Highland roads, Woolston said. Areas on the east side of town, on the other side of Brunswick Landing and Cook's Corner, and to the south toward Harpswell, are desirable places to go, but lack sufficient road infrastructure, he said.

Lee Cataldo, director of programs with the Brunswick-Topsham Land Trust, was among the meeting-goers. Speaking solely as a Brunswick resident, she said she and her children "ought to be able to get on a bike and ride anywhere in town without having to get onto busy, unsafe roads. Drivers are in a rush and distracted, and the roads are designed for them, not human-powered transportation."

Cataldo would like to see the Perimeter Trail on the Landing completed in order to facilitate greater connectivity around Brunswick. She would also like to see trails and trail connections like the Town Commons improved to become more user-friendly. Cataldo said she wants the town to play an active role in planning the East Coast Greenway's three significant sections — the Merrymeeting Trail, Androscoggin to Kennebec Trail and Casco Bay Trail — which would converge in Brunswick.

"I've seen what trail connectivity and increased recreational opportunity through trails can do to a place's economy and social and public health," Cataldo said. "It seems we should be able to do that here."

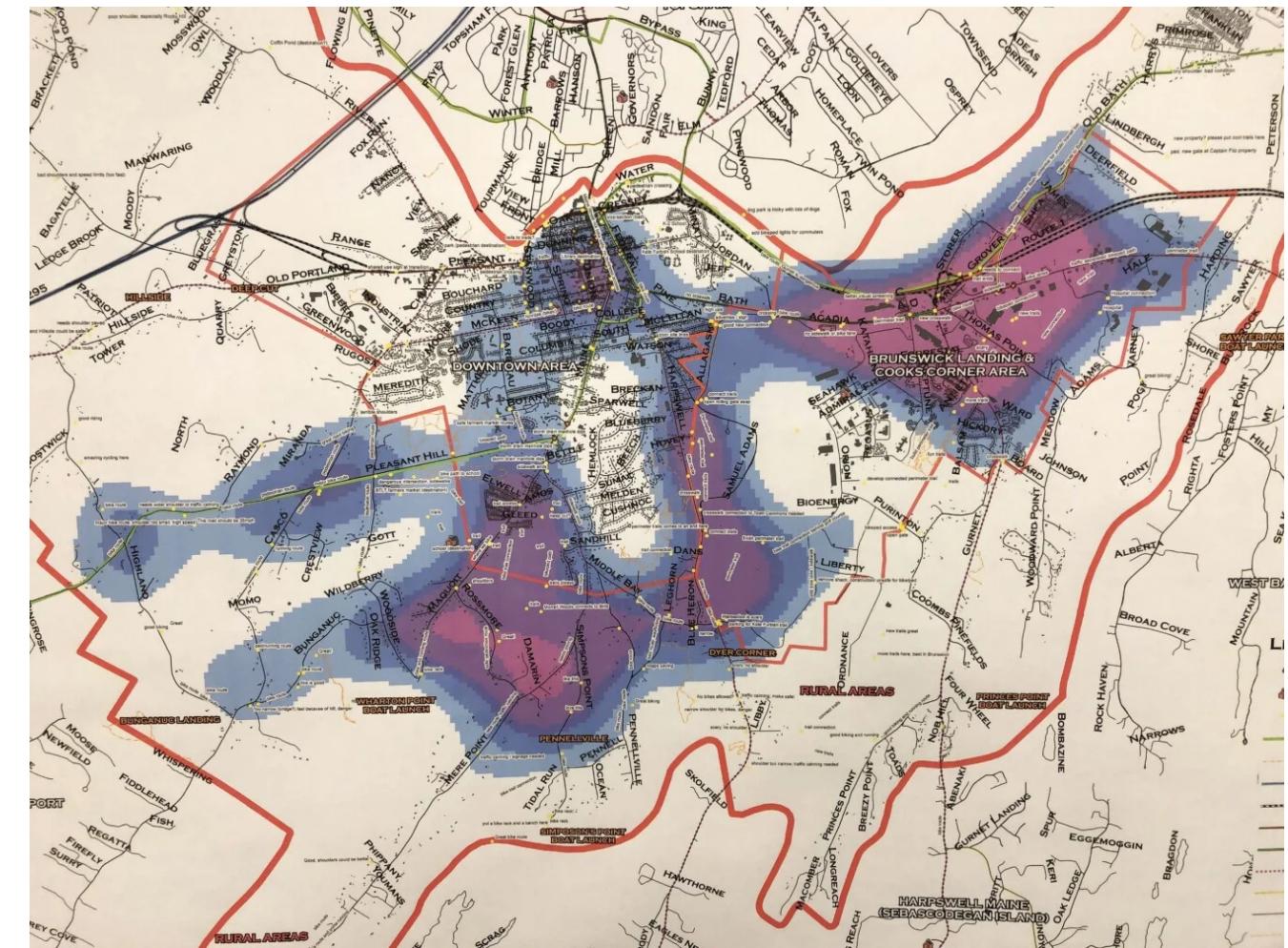
Comments are not available on this story.

## Maine Street, Bath Road, top public's wish lists for Brunswick bike-ped improvements

[pressherald.com/2020/02/28/maine-street-bath-road-top-publics-wish-lists-for-brunswick-bike-ped-improvements/](https://pressherald.com/2020/02/28/maine-street-bath-road-top-publics-wish-lists-for-brunswick-bike-ped-improvements/)

By Alex Lear

February 28, 2020



This map of Brunswick shows the level of interest bicyclists and pedestrians have in various sections of town, either because they are popular or need to be improved. Areas of greatest interest are red, with those of less interest in blue or white.

BRUNSWICK — Maine Street and Bath Road topped residents' wish lists as two busy corridors most in need of bicycling and pedestrian access improvements.

The data stems from feedback from about 200 people — through paper surveys distributed at three public input-gathering sections in various parts of town in January and online as well — according to Laurel Margerum, an intern in the town manager's office. She, Town Planner Jared Woolston, and Jim Tasse, assistant director of the Bicycle and Pedestrian Coalition of Maine, discussed the results at a forum Feb. 27.

More than 20 people each saw Maine Street and Bath Road most in need of bicycling safety work, followed by Federal Street/Sills Drive/Harpswell Road (largely Route 123), Brunswick Landing (the former Brunswick Naval Air Station), and roads to neighboring communities like Bath and Harpswell.

More than 40 people most wanted Maine Street's pedestrian infrastructure improved, followed by Bath Road/Cooks Corner (37), outer Pleasant Street/River Road (36), and Federal Street/Sills Drive/Harpswell Road (21).

Of those polled, 60% found the area near their home not bicycle-friendly, and 51% not pedestrian-friendly, and 46% and 24% thought the same, respectively, of the area around their workplace.

Brunswick last updated its Bicycle and Pedestrian Improvement Plan in 2004 and, with the Comprehensive Plan being updated, the town looks to revise it accordingly. A framework is on the committee's page at [brunswickme.org](http://brunswickme.org), but is "pretty rough right now," according to Woolston. "This process should refine ... what the public thinks is important, and it should help us prioritize what should be in the plan."

The town looks to submit the Comprehensive Plan update to the state for review by early October, according to Matt Panfil, Brunswick's director of planning and development.

The feedback will help the town prioritize where financial resources should be directed and in applying for grants, Tasse said.

"Without a plan, it's difficult to make a case for funding from the state or another entity," he said.

Tasse polled the roughly 20 people at last week's meeting about their top priorities. Maine Street again topped the list, with 86% deeming it of highest or high priority for immediate attention. Bath Road was 75%, Pleasant Hill Road 62%, Brunswick Landing and Pleasant Street both 58%, Federal Street/Sills Drive/Harpswell Road 52%, McKeen Street 45%, and roads to neighboring towns 40%.

"I don't think any place in this town is safe for biking," said frequent bicyclist and walker Sue Stableford, pointing to drivers who speed or text on their phones, and few cases in which road shoulders are wide enough for a bicyclist to steer clear of traffic.



Jared Woolston, Brunswick's planner, discusses the feedback gleaned from about 200 people surveyed on which streets are most in need of bicycle and pedestrian safety improvements.

*Alex Lear / The Forecaster*

"The purpose of this is to set up some prioritization," Woolston responded. It is futile to tell the Town Council "that we want everything, everywhere," he said, because it is "just not going to happen. But to ask them for some reasonable shortlist of things on a reasonable timeline is potentially something that is tangible."

Councilor Kathy Wilson agreed. "This is just a beginning," she said. "You've got to start somewhere."

Comments are not available on this story.