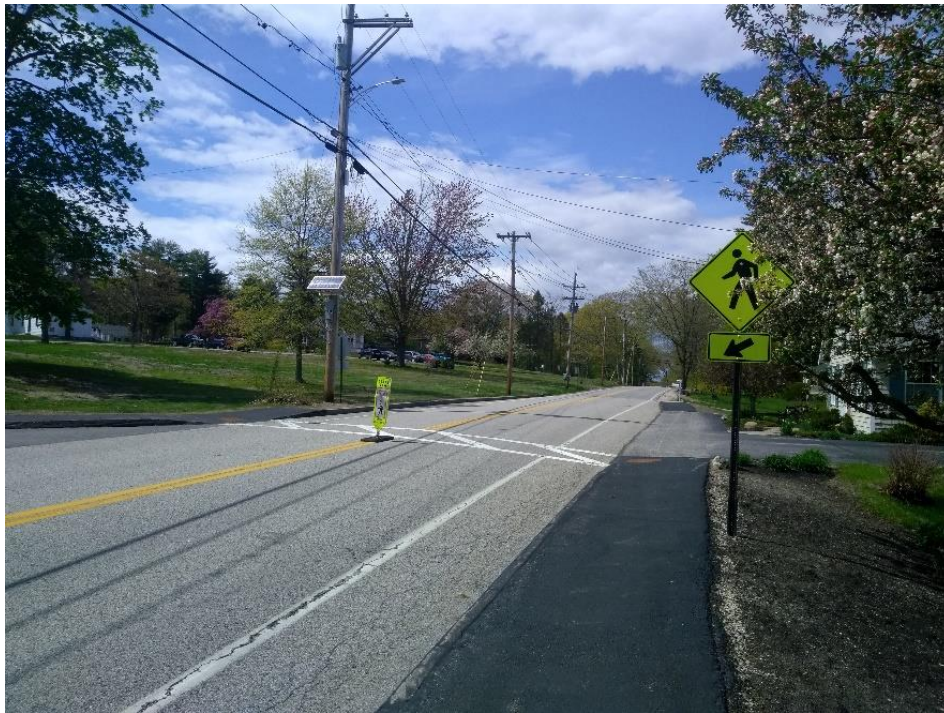


Improving Conditions for People to Walk and Bike in Eliot

Prepared by the Town of Eliot Planning Office

Approved by the Eliot Select Board, December 9, 2021

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1 Purpose of the report

The purpose of this report is to prioritize transportation corridors in Eliot for walking and riding a bicycle.

Walking and bicycling are sometimes called *active transportation*, referring to their exercise and health benefits. There is a clear demand in the community for improving active transportation options on some corridors in town, but the infrastructure is lacking.

This report is not intended to be a replacement for a comprehensive active transportation plan, but rather to hone in on a few corridors where public input for improvements has been strong, or where there may be a short-term window of opportunity to implement them. A comprehensive active transportation plan typically has more comprehensive non-infrastructure strategies to pair with capital projects, while this report focuses primarily on capital projects (though it has a list of non-infrastructure strategies). A comprehensive active transportation plan also usually requires about a year or longer to complete, while this report and the associated public input, fieldwork, and stakeholder coordination process has taken about seven months with in-house staff. This report does not presume to include all worthy active transportation projects in town, but it arguably provides a long enough menu of recommendations to serve as an investment guide in the short term. The Town should consider creating a comprehensive active transportation plan in the near future.

2 Why should we build walking and bicycling facilities in Eliot?

To give Eliot residents more choices in how they get around town

When a street is a *complete street*, meaning it is designed to accommodate different modes of transportation, people have an easier choice between driving, walking, and bicycling down that street. They can feel comfortable with a dedicated facility such as a sidewalk, path, or paved shoulders, rather than walking or bicycling in the general travel lane, where traffic veers around them.

AARP reminds us: “About one-third of Americans do not drive, so pedestrian-friendly roadways are essential for people of all ages to both get around and to stay active and healthy”. Accordingly, for Eliot residents who don’t drive, the opportunity to comfortably walk and bike to some destinations may be especially important. People who travel with a mobility aid, such as a wheelchair, may gain new travel options with a sidewalk that meets Americans with Disabilities Act (ADA) standards and guidelines.

To improve the safety of Eliot’s transportation network

People walking and bicycling are sometimes called *vulnerable road users* because they aren’t in the protective shell of a motor vehicle. Paved shoulders may reduce the likelihood of people bicycling getting struck from behind by a car, a common crash type in rural areas. While some people feel confident bicycling in the general travel lane on most roads, the goal is for roads to accommodate *all ages and abilities*. People bicycling at a slower speed experience a greater speed differential when passed by a car.

Sidewalks reduce the likelihood of a “walking along the roadway” crash. Where a sidewalk or path doesn’t exist or can’t be installed, paved shoulders can also help people walking or jogging by providing a stable surface out of the travel lane, reducing crash risk. Sidewalks aren’t ideal for bicycling, and doing so may create conflicts with people walking. However, sidewalk riding is legal in Maine unless specifically

prohibited by a local ordinance, and sidewalks with lower volumes of pedestrian activity can be good places for young kids learning to ride a bike.

To make Eliot more age-friendly

About 1 in 5 Eliot residents is 65 years of age or older, according to the US Census (2019 estimate). Eliot's Aging-In-Place (AIP) Committee has worked hard to make Eliot more age-friendly and improve quality of life for older adults. A community assessment conducted by the AIP Committee found that there was strong demand for improving walkability and active transportation infrastructure. The assessment included a survey with over 300 responses, primarily from residents aged 50 and older.

One of the questions on the assessment was, "Please rate the following when thinking about civic buildings and parks in Eliot". The answer choices were "satisfied", "no opinion", or "not satisfied", and survey respondents could write in additional comments. "Well-lit, safe streets and intersections for all users..." had the highest level of dissatisfaction, and "Sidewalks that are in good condition, safe for pedestrian..." had the second highest level of dissatisfaction. The 50 write-in comments were tallied by theme, and the two most popular themes were "Additional sidewalks (including beyond the center of town)" (17 comments) and "Need wider shoulders to walk and bike safely" (9 comments). "Need bike paths" and "Poor street lighting" (6 comments) were tied for third.

Some sample quotes include:

- "I live on 103 in south Eliot and I would like to see sidewalks or bike path[s], there are a lot of residents who walk in this neighborhood and people drive so fast [that it] makes it unsafe."
- "If my family, which includes a senior, middle-aged parents, and two young children (often in a wagon or stroller) wants to go for a walk in Eliot, we would need adequate sidewalks on Beech Road and around the Cumberland Farms intersection. This would give us a chance to walk for exercise and walk to and from our daughter's daycare on Beech Road. The senior is also our child care so she would love to walk with the grandkids!"
- "I notice (every morning as I arrive to work) elder members walking the only stretch of sidewalks we have in Eliot (often back and forth, several times a day). I am so proud to see them keeping themselves fit and active, but often think how wonderful it would be to have more sidewalks for everyone to walk/bike on from our town line in Kittery and all along State Road. Walking about in our community brings all ages of people outside and seeing one another. As a mother of three children, one aspect of living in Eliot that I missed (we used to live in Newburyport, MA) from the time my children were babies until now (my teens are always off on their bikes with little or no bike lane on our roads) are sidewalks and bike lanes on our roads. I feel this addition would add so much value to our community for young and old alike."

It should be noted that a small number of survey comments were opposed to the expansion of sidewalks due to costs and concern that the sidewalks would hurt the rural character of the town.

The value placed on improving active transportation options for older adults expressed in the AIP Committee's survey is echoed by AARP. As stated in the organization's 2021-22 Policy Book:

Transportation is a vital link that connects people to their communities. Older adults need a variety of convenient and safe transportation options to get to jobs, social activities, medical appointments, and community services that support their independence. These transportation options include

walking, cycling, using micromobility devices, taking public transportation, ride-sharing, and driving. These options are key to creating mobility and ensuring that everyone can continue to live in their communities as they get older, particularly if they do not drive.

To enable more transportation options for kids in Eliot

Improving active transportation options for kids is a story of both challenges and opportunities. As stated in the *Small Town and Rural Multimodal Networks* guide (“STAR Guide”):

Children have a wide range of skills and abilities when navigating traffic...The planning and design of routes that serve schools should consider that children tend to react slowly, have a narrow field of vision, have difficulties judging the speed and distance of approaching vehicles, have difficulty concentrating on more than one thing at a time, and have difficulty determining direction of auditory input.

The guide recommends that active transportation facilities designed for kids should have “vertical and horizontal separation from motor vehicle traffic”, like a sidewalk with a curb or a grass buffer strip between it and the road. Horizontal space and physical separation are also important for kids riding bicycles, as they may be more likely to meander from side to side.

One of the biggest travel needs for kids is going to and from school. The concept of Safe Routes to School (SRTS) refers to improving walking and cycling options to and from K-12 schools. Eliot’s only sidewalk on State Rd. serves the Elementary School, but it ends near Moses Gerrish Farmer Rd. on one side and the William Fogg Library on the other side. Beyond those points, parents and kids who want to walk or bike have to do so in the general travel lane or on the grass shoulder.

To promote physical activity

Walking, jogging, and cycling are healthy activities for people of all ages. Expanding Eliot’s dedicated walking and bicycling infrastructure should help to encourage more people to walk, run, and bike for exercise around town. According to Harvard Health Publishing, walking is associated with a multitude of health benefits, including boosting immune function, preventing arthritis or reducing pain from arthritis, reducing the risk of breast cancer, and helping with weight management. A recent *New York Times* article summarizing a study of octogenarians concludes: “Simple activities like walking boost immune cells in the brain that may help to keep memory sharp and even ward off Alzheimer’s disease”.

With bicycling, as described by the Mayo Clinic,

you’ll get a great cardio workout that challenges your legs and core muscles without putting stress on your joints. In fact, cycling has been proven to benefit folks who have osteoarthritis. If your joints can’t take the impact of running or walking, cycling can help decrease pain and increase your aerobic capacity, according to one study.

The increasing popularity of electric-assist bicycles (e-bikes) means more options for people of all ages and abilities to ride a bike. E-bikes have an electric motor that supplements pedaling, which can be important for riding uphill or starting from a stop. This motor can either be controlled by a handlebar throttle or be activated automatically when pedaling, with some e-bikes having both options. E-bikes are classified as bicycles under state law, and all but the most powerful e-bikes are allowed on shared use (bicycle and pedestrian) paths as well as on streets and roads.

To make it easier to meet neighbors

While the lack of the protective shell of a motor vehicle is what makes pedestrians and cyclists vulnerable road users, it also means they are open and more connected to their surroundings as they travel. While only some trips are practical on foot, in a wheelchair, or on bike due to their slower speed, that slower speed allows people to say hi to neighbors and stop and chat if they feel like it. The sidewalk becomes a mini-public space, apart from the road, where informal neighbor meetings can take place. It is an important element of a sociable street, which, in the words of architect Jan Gehl, allows us to “be among, to see, and to hear others, to experience other people functioning in various situations.”

To reduce air pollution and greenhouse gas emissions

Transportation is a big contributor to GHGs in Maine and in York County. Consider the following from the report, *Estimating On-road transportation emissions in York County, Maine*, by Karina Graeter of SMPDC:

- “Transportation is responsible for 54% of Maine’s greenhouse gas (GHG) emissions – the most of any sector.”
- “In 2017-2019, annual VMT [vehicle-miles traveled] for all of York County was approximately 2 billion miles”
- “Light duty vehicles (including passenger cars, light duty trucks, and light duty commercial vehicles) are responsible for 70% of the ORT [on-road transportation] emissions.”
- In 2018, Eliot was responsible for an estimated 21,277 metric tons of carbon dioxide equivalent (MT CO₂e) from on-road transportation sources, over 2% of the total for all of York County.

Walking and bicycling are zero-emissions modes of transportation. By building infrastructure that allows people to make an easier choice to walk or bike for trips where they would otherwise drive, the projects recommended in this report can help Eliot do its part in reducing air pollution and greenhouse gas (GHG) emissions. This will help address the statewide goal, expressed in the Maine Climate Council’s *Maine Won’t Wait: A Four-Year Plan for Climate Action*, to reduce light-duty VMT over time, seeking a 10% reduction by 2025 and a 20% reduction by 2030.

To address local and regional goals, policies, and strategies

Building active transportation infrastructure addresses several goals from the 2009 Comprehensive Plan:

Transportation Goal 3: Expand alternative transportation mode choices for workers, students, bicyclists and pedestrians whenever fiscally possible.

Transportation Policy 5: To promote public health, protect natural and cultural resources, and enhance livability by managing land use in ways that maximize the efficiency of the transportation system and minimize increases in vehicle miles traveled.

Transportation Strategy 5.2: Develop an ad-hoc committee to: * Study the potential of future recreational paths; *Develop a plan to enhance access and safety for pedestrians and bicyclists between the Eliot commons area and Eliot village.

Transportation Strategy 5.3: Ensure that future road design measures address pedestrian[s’] and bicyclist[s’] needs

It also addresses the regional Goal 3 in the Kittery Area Comprehensive Transportation System (KACTS) 2019 *Long Range Transportation Plan* to “Improve safety for all transportation system users”. The plan states that “KACTS is committed to providing a safe transportation network for its residents and visitors, and will work with MaineDOT to improve bicycle and pedestrian safety in southern Maine.” KACTS, which is part of the Southern Maine Planning and Development Commission (SMPDC) and includes the Towns of Eliot, Kittery, South Berwick, Berwick, and York, is a key partner for the Town of Eliot for seeking future funding for these improvements.



Figure 1. Residents’ homemade banner promoting the benefits of sidewalks



Figure 2. Another benefit of sidewalks

3 Background

Eliot generally only has one stretch of public right-of-way (R/W) with a sidewalk: on State Rd. in the Village running from near Beech Rd. to Old Rd. and the William Fogg Library. This stretch also has a narrow shoulder that seems to be used by most bicyclists. Within the Village and beyond, a number of community destinations are within a walkable or bikeable distance, but there are no dedicated walking or bicycling facilities. These destinations include the Boat Basin, Frost-Tufts Park, and Eliot Commons. Although the State Rd. sidewalk goes by Town Hall, the Elementary School, and the Fogg Library, it does not extend to most residential areas within walking distance of those destinations.



Figure 3. The existing sidewalk, wide shoulder, and “Share the Road” signage on State Rd.

3.1 Trip distances and destinations in and around the Village

What are reasonable active transportation distances and times? Table 1 provides a guide for a one-mile trip. However, people differ in how far they can or want to walk or bike, and they also have different typical walking and bicycling speeds. Walking speeds generally range from 2.0 to 4.3 feet per second, or about 1.3 to 2.9 mph. This shows how important it is to consider all ages and abilities in facility planning and design.

Distance and mode	Speed	Time
1 mile walk	3 mph	20 minutes
1 mile bike ride	10 mph	6 minutes

Table 1. Typical speed and time for a one-mile walk or bike ride. Adapted from the STAR Guide.

Table 2 applies these speeds to active transportation trips between a few points of interest in the Village area. Because the roads in and around the Village area leading to these destinations have homes abutting them and neighborhood streets intersecting with them, it is clear that many residents live within a walkable or bikeable distance to some or all of them, so the lack of safe and comfortable facilities, not distance, is what is more likely to dissuade them from active transportation.

From	To	Approx. distance		Trip time (min)	
		Feet	Miles	Walking	Bicycling
William Fogg Library	Frost-Tufts Park and Playground, Barks & Rec Dog Park	2000	0.4	8	2
Town Office	Boat Basin	5280	1.0	20	6
Town Office	Eliot Commons	6600	1.3	25	8
Eliot Elementary School	Frost-Tufts Park and Playground, Barks & Rec Dog Park	4800	0.9	18	5

Table 2. Approximate network distances and travel times between points of interest in the Village area

3.2 Safety

In 2017, MaineDOT released the state Strategic Highway Safety Plan (SHSP). It emphasizes that fatal and serious injury traffic crashes “are almost always preventable”. This is a motivating principle behind the state’s overall transportation safety goal, Toward Zero Deaths, and the national Vision Zero movement. These philosophies have generated a shift in how we think about transportation safety. Traditionally, the focus fell heavily on users of the transportation system avoiding all errors. While responsible behavior is still strongly emphasized, there is now a similar emphasis on making the transportation system safer, because people make mistakes and crashes will happen, but they don’t have to be fatal or debilitating. Instead of expecting road users to be perfect, transportation system designers step up to share, with road users, the responsibility for safety. The practice of transportation safety engineering, backed by a strong body of research, now has many “tools in the toolbox”: specific road design features and safety strategies demonstrated to reduce the number and-or severity of certain crash types. These are sometimes known as safety countermeasures.

With this safety toolbox, there is work to be done. According to the Maine Bureau of Highway Safety (MeBHS) FFY 2021 Highway Safety Plan, on average, about 150 people per year, including 14 on foot and 2 on bike, die in traffic crashes. Another 725 per year are seriously injured. Over 250 pedestrians per year are involved in crashes, almost all resulting in some degree of injury. In York County, there were almost 100 traffic fatalities in the five-year period between 2014-18, and there were exactly 100 serious injuries in 2018 alone.

Table 3 and Figure 4, Figure 5, and Figure 6 show selected crash statistics for Eliot.

Statistic	Value
Total crashes in Eliot, 2011-15	428
Total crashes in Eliot, 2016-20	526
Total crashes in Eliot, 2011-20 (10-year period)	954
Increase in crashes, 2016-20 compared to 2011-15	23%
Most common crash type, 2011-20: Went Off Road , # (% of total)	286 (30%)
Second most common: Rear End / Sideswipe	269 (28%)
Third most common: Deer	188 (20%)
Pedestrian and bicycle crashes, 2011-20	4

Table 3. Selected Eliot traffic crash statistics. Source: Maine Public Crash Query Tool.

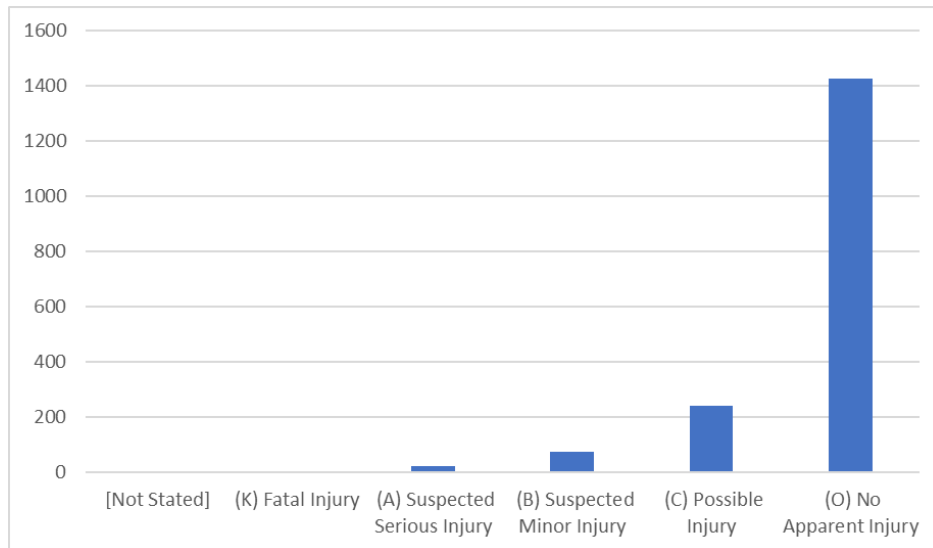


Figure 4. Traffic crashes in Eliot, 2011-20, by severity of injury. While the majority of crashes had no apparent injury (also known as “property damage only” crashes), a crash causing an injury or possible injury occurred about once every 11 days, on average, during the time period. A crash causing a fatal or serious injury occurred about twice per year (22 total). Source: Maine Public Crash Query Tool.

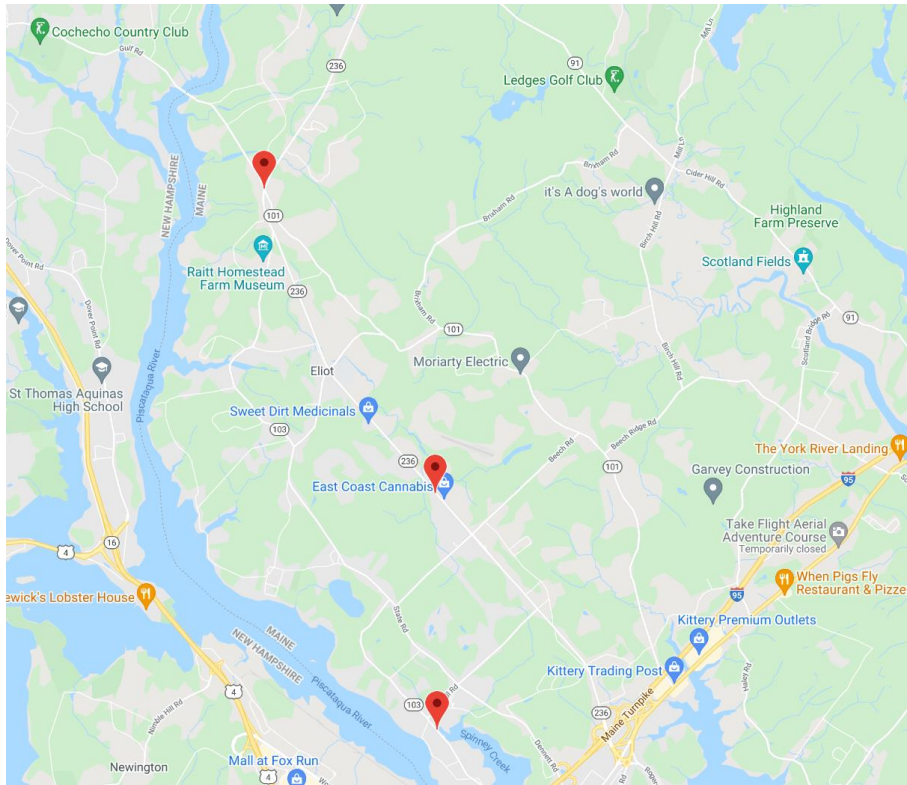


Figure 5. Bicycle crash locations in Eliot, 2011-20. The locations are Main St. in South Eliot (2015), Route 236 near Julie Ln. (2019), and the Route 236-101 (Dover Rd./Goodwin Rd.) intersection (2019). All three were injury crashes. Source: Maine Public Crash Query Tool.

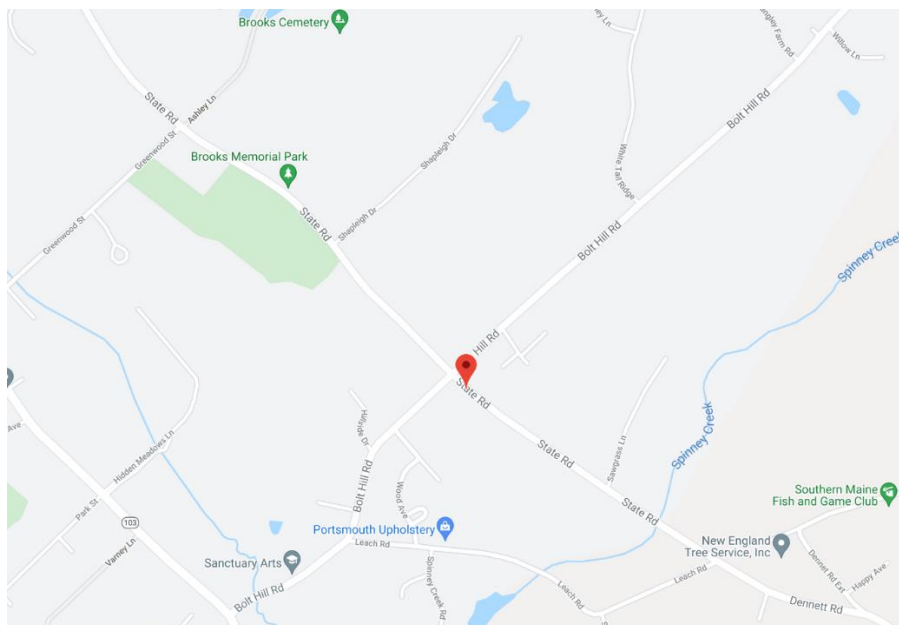


Figure 6. One pedestrian crash is included in Maine's data for Eliot in the 2011-20 period. The location is near the State Rd. and Bolt Hill Rd. intersection, and the reported non-injury crash occurred in 2017. Source: Maine Public Crash Query Tool.

Although there have been only 4 pedestrian-bicycle crashes over a 10-year period, that doesn't mean that active transportation safety is not a problem in town. Consider the following:

- **Unreported crashes.** As useful as Maine's Public Crash Query Tool is, many state and local crash databases are based on police reports. Therefore, they don't include crashes that aren't reported to police. Studies have been able to estimate the percentage of crashes that go unreported, for example, by conducting surveys where people are asked if they were recently involved in a crash and, if so, if they reported it to police and-or insurance. A large 2010 survey by the National Highway Traffic Safety Administration (NHTSA) found that about 30 percent of crashes go unreported, although these tended to be less severe crashes. It also found that, of all respondents who reported being injured in a crash as a pedestrian, there was a nearly even reported/unreported split.
- **Random chance and luck.** While crash data is an important tool for identifying potentially unsafe roadways and intersections, it should not be the only tool used. Some roadways or intersections may actually be higher-risk, but have no reported crashes, due to random chance. Likelihood does not mean certainty. In recent years, transportation safety stakeholders have sought to take a more proactive approach – sometimes called “systemic safety” or a “safe system” approach – that looks for physical characteristics within the transportation system that contribute to higher risk. It evaluates whether a certain roadway or intersection is similar in design to other roadways or intersections that tend to be higher risk. With this approach, the actual crash data for those locations is still important, just not the only piece in the puzzle. The question, “How many crashes does this roadway have?” is paired with the question, “Is this the type of roadway that tends to have a greater frequency of crashes, including severe ones?” Examples of this approach include “walk audits” and “bike audits”, where a group of people visit a site and note characteristics related to active transportation safety.
- **Near misses.** When people narrowly avoid getting into a crash, for example by taking evasive measures, these near misses by definition won't show up in typical crash datasets. However, near misses may suggest a traffic safety issue. Consider the following excerpt from a public comment: “a few years ago I saw a bike rider turned over on the side of State Road. I pulled over and gave him a hand. He had been squeezed off the road by an automobile.” In this case, the person bicycling took an evasive maneuver, one that resulted, or could have resulted, in an injury. No bicycle crashes show up on the above map (Figure 5) on State Rd. If there were paved shoulders, it is possible that this near miss could have been avoided, or the bicyclist would have had more room to veer without running off the road and flipping over.

One of the focus areas of the SHSP is “Pedestrians and Bicyclists”. This focus area recommends safety outreach and education, awareness campaigns, and infrastructure improvements. This report for Eliot seeks to address some of the focus area recommendations, such as:

- Identify opportunities for pedestrian infrastructure improvements, including sidewalks and crossing improvements.
- Incorporate proposed pedestrian infrastructure improvements within MaineDOT's and local community's planning process to insure that identified pedestrian needs are addressed and included within nearby infrastructure projects.

- Educate municipalities, planners and advocates on the policies, processes, and funding opportunities available to improve pedestrian safety through road improvements, site visits, education, presentations and media campaigns

Some active transportation improvements may also help with non-walking or -bicycling crash types. For example, paved shoulders, especially on curves, may lessen the risk of run-off-the-road crashes. This crash type is the most common reported crash type in Eliot (Table 3), and lane departure crashes (which include both run-off-road and drifting across the centerline) are “Maine’s most frequent fatal crash type” according to the SHSP. As the Federal Highway Administration (FHWA) states in explaining how roadside design improvements at curves are a proven safety countermeasure:

In cases where a vehicle leaves the roadway, having strategic roadside design elements, including an added or widened shoulder, flattened sideslopes, or a widened clear zone can provide drivers with an opportunity to regain control and re-enter the roadway in their lane or come to a safe stop before rolling over or encountering a fixed object...**Adding or widening shoulders** gives drivers more recovery area to regain control in the event of a roadway departure. [emphasis in original]

Another example of this is design changes that slow traffic speeds: while they may be done primarily to benefit active transportation, they may also lower the risk and-or severity of motor vehicle crashes. Motor vehicle speed influences the kinetic energy of a crash, which influences severity. Almost 4 of 5 crashes in Eliot from 2011 to 2020 occurred on roads with higher posted speed limits (Figure 7).

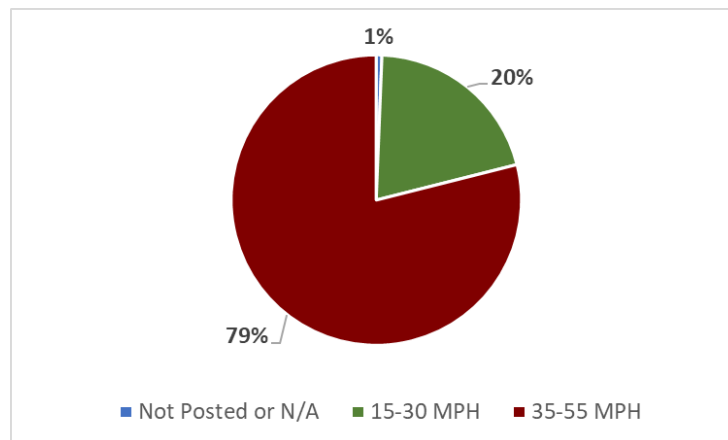


Figure 7. Percent of Eliot crashes by posted speed limit, 2011-20. Source: Maine Public Crash Query Tool.

4 Types of active transportation facilities

The first step in this prioritization process is to create a menu of active transportation facility types. These facilities work best when they are designed to be sensitive to the context of a roadway. That context includes the characteristics of the roadway (number of lanes, speed limit and prevailing speeds, roadway classification, etc.), surrounding land uses, area type (rural, suburban, village, commercial, etc.), and number and type of nearby destinations. Some facilities work better in certain contexts than others. This section only describes facility types. In Section 6, facilities are actually recommended for specific corridors.

The purpose of this section is to briefly describe the facilities and some design considerations. This section doesn't go in depth on facility design because there are many other resources that already do so. The appendix has excerpts from some of those other resources, centered on the STAR Guide, because that guide focuses on small town and rural active transportation strategies. The descriptions below draw heavily from and quote the guide. This section also isn't meant to provide an exhaustive list of all possible active transportation improvement types. It focuses on some that may be the best fits for different corridors in Eliot, particularly the ones that received a lot of comments seeking improvements.

4.1 Sidewalk

A facility that reduces crash risk for people walking by giving them their own place to walk, out of the roadway

- “Sidewalks are recommended on all but the most low-speed and low-volume roadways [and] are appropriate on all types of roadways where pedestrian activity is likely.” (STAR Guide)
- Visual character and context: may be more appropriate for village and suburban contexts in Eliot, where there tend to be greater concentrations of walkable destinations.
- Recommended sidewalk width: 5-6 ft.
 - In constrained situations, a 4 ft. width may be possible, but based on draft ADA guidelines, a 4-ft.-wide sidewalk should have wider passing spaces (minimum 5 ft. by 5 ft.) every 200 ft. maximum. Also, a 4 ft. width does not enable comfortable side-by-side walking.
- Furnishing zone: the strip between the sidewalk and the road that provides some separation between the person walking and adjacent traffic. This could include or exclude a curb. Plowed snow can be stored here so that the sidewalk can remain passable in the winter. The furnishing zone may also have utility poles, mailboxes, street signs, and stormwater management features.
 - Recommended minimum width in constrained corridors: 2 ft.
 - Sometimes, sidewalks in very constrained corridors have no furnishing zone, but that removes the benefits and functions listed above.
 - Recommended minimum width in other corridors: 4 ft.
- Per ADA guidelines, sidewalks should be relatively flat from side-to-side. The cross-slope (the grade perpendicular to the path of travel) should not exceed 2%. The running slope (the grade parallel to the path of travel) should not exceed the same slope for the adjacent roadway.
- Typical surface: asphalt or concrete. Each of these surfaces has pros and cons. Asphalt tends to be lower-cost to install but have greater maintenance needs over time. Concrete tends to be higher-cost to install but more durable, with less maintenance needs. However, relative prices between the two can fluctuate.

4.2 Marked crosswalk

A marked area within a roadway where a vehicle must yield the right-of-way to a pedestrian who is crossing or who has shown visible intent to enter the marked crosswalk [State law reference – 29-A MRSA 2056(4)]

- MaineDOT requires that marked crosswalks be installed in a uniform way, meeting certain design requirements and guidelines. The following bullet points summarize them.
- Minimum width: 6 ft.
- For added visibility, crosswalks should be designed with the ladder/piano-key style markings (thicker lines parallel to the vehicle travel lanes) or the diagonal marking style, rather than transverse lines alone (2 lines parallel to the pedestrian path and perpendicular to the vehicle travel lanes; nothing in between)
 - MaineDOT may allow municipalities to create, within limitations, a custom crosswalk with a painted infill design between 2 transverse lines. Some municipalities across the country have turned crosswalks into works of art with decorative designs. (See the “Imagine People Here” program described in Section 8.2.2.)
- Standard crosswalk markings should be retroreflective for visibility at night, meaning they reflect a portion of the light from car headlights back at the car. Retroreflectivity is a typical characteristic of newer traffic markings and signs and is required by the Manual on Uniform Traffic Control Devices (MUTCD), the book containing national standards for installing traffic control devices.
- Crosswalks at unsignalized locations must have standard pedestrian warning signs on both sides. Additional features may include in-road “yield to pedestrians” signs, sign plaques with arrows, and triangular, “shark’s teeth” yield markings. They should only be installed on roads with a speed limit of 40 mph or less and at locations where there is adequate stopping sight distance (i.e. the distance needed for a person driving at a certain speed to see a pedestrian, react, and come to a complete stop before reaching the crosswalk).
- Crosswalks at signalized locations should have pedestrian countdown signal heads and accessible pedestrian signal (APS) technology to assist persons with disabilities in crossing.

4.3 Shared use path

A path specifically for people walking, bicycling, jogging, and wheeling, also sometimes referred to as a trail, multi-use trail, multi-use path, pathway, or greenway

- Most shared use paths are in their own R/W, away from the roadway. They are often located within old railroad corridors, sewer easements, parks, or natural areas. In part because of their design and context, shared use paths “can provide a low-stress experience for a variety of users using the network for transportation or recreation” (STAR Guide).
- Recommended width: 10-14 ft. for two-way travel. Many factors affect width, including expected volume. 10 ft. is a common width. 8 ft. may be considered for short stretches in constrained areas where low volumes are expected. The path should have shoulders (typically gravel or grass) that are kept clear and are at least 2 ft. wide.
- Maximum cross-slope: 2%. Maximum running slope: 8%. Elevation changes in the running slope shall not exceed 1 ft. per 12 running ft. of path (per MaineDOT).

- The STAR Guide states that shared use paths “have a small footprint and can display a distinctly rural character”. Shared use paths can be found in all place types, including small town village centers, suburban areas, and rural areas.
- Where shared use paths cross roadways, crosswalk markings and signage are installed, and visibility should be high. Crossings can also have additional safety features, such as median refuge islands, curb extensions, flashing warning lights activated by a person wishing to cross, or special traffic signals that stop traffic only when trail users want to cross.
- Bollards used to be a go-to design option for preventing use of the path by cars, but they are now discouraged, unless there is documented history of motor vehicle intrusion that cannot be addressed through other designs. Bollards may be clipping/tripping hazards for trail users themselves, including for people using bikes with trailers, people using motorized wheelchairs, or people new to riding a bike. Landscaped or hardscaped islands, signage, and other visual cues at path-roadway intersections are preferable and should be sufficient in most cases to prevent motor vehicle intrusion.
- Typical surface: gravel, stone dust, asphalt, or concrete. By providing a firm, stable, and slip-resistant surface, shared use paths increase accessibility for people with limited mobility. A shared use path can provide better accessibility within a park or natural area than a typical hiking trail.

4.4 Sidepath

A shared use path that is along the side of a roadway, physically separated from traffic by a buffer area with grass, a stormwater management feature, a curb, and-or a crashworthy physical barrier

- As noted in the STAR Guide, a sidepath “provides a more appropriate facility for users of all ages and abilities than shoulders or mixed traffic facilities on roads with moderate or high traffic intensity...encourages bicycling and walking in areas where high-volume and high-speed motor vehicle traffic would otherwise discourage it [...and is] Very supportive of rural character when combined with vegetation to visually and physically separate the sidepath from the roadway.”
- Sidepaths may need R/W or easements on the side of the road for the path and buffer area

4.5 Bike lane

A lane that is exclusively for people bicycling, typically on the right side of the road between the travel lane and edge of pavement or curb

- Bike lane pavement markings – a solid lane line, bicyclist symbol, and arrows – as well as bike lane signage alert drivers to expect to see people bicycling in the corridor
- Recommended width: 4 ft. (absolute minimum) to 6.5 ft. (preferred)
- Where there is room, bike lanes may be buffered from the adjacent travel lane with a striped buffer of at least 1.5 ft. A separated bike lane has a buffer with vertical physical separation, such as a curb, in-ground plantings or planter boxes, or flexible plastic delineator posts.
- “Reflects a more urban visual atmosphere than an unmarked shoulder” (STAR Guide)
- “Appropriate on streets with moderate volumes and moderate speed” (STAR Guide). Physical separation is recommended for higher-volume and higher-speed situations.
- MaineDOT’s Complete Streets Policy prohibits bike lane installation where there is no sidewalk on the same road, because bike lanes are exclusively for bicycles.

4.6 Paved shoulder

An area of pavement on the edge of the roadway where people bicycling or walking may travel if there are no other facilities for them that have greater separation

- Reduces risk of crashes involving people walking along the roadway or people on bike getting struck from behind; provides a “recovery area” for vehicles that drift from the travel lane
- Recommended width: 4 ft. Where there is room, a buffer of between 1.5 to 4 ft. is an option.
- A paved shoulder may be more visually sensitive to a rural context compared to a bike lane.
- “Appropriate on streets with moderate volumes and moderate speed” (STAR Guide). Physical separation is recommended for higher-volume and higher-speed situations.

4.7 Yield roadway

“...Yield roadways can effectively serve local travel needs, maintain aesthetic preferences, and [are] a common form for low-volume local rural roads. When operating at very-low volumes and at low speeds, pedestrians and bicyclists are comfortable walking within the travel area of the roadway...Yield roadways are designed with narrow roadway dimensions to prioritize local access and community livability.” (STAR Guide)

- Appropriate for very-low-volume, low-speed roadways:
 - Maximum: 2,000 vehicles per day (vpd) and 30 mph speed limit
 - Preferred: less than 1,000 vpd and maximum 20 mph speed limit
- Recommended travelway width: 12-20 ft.
- This narrow travelway width allows extra space along the roadside for a combination of features, such as parallel parking spaces; gravel, turf, or earth shoulders; stormwater management; and plantings. Pull-out areas should be provided every 200-300 ft. for infrequent situations when two vehicles need to pass.
- The Fire Department should be consulted early in the design process for a yield roadway.
- The narrow width, low traffic volumes, low traffic speeds, and roadway features may reduce crash risk and create a more comfortable environment for neighbors to walk, casually bike, linger, play, and meet with each other in the roadway.

4.8 Example facility photo gallery



Figure 8. Old Eastern Marsh Trail (shared use path) in a suburban-rural context near the New Hampshire-Massachusetts border



Figure 9. Bike lanes with a sidewalk on one side of the street in a suburban-rural context (Carrboro, North Carolina, 2014)

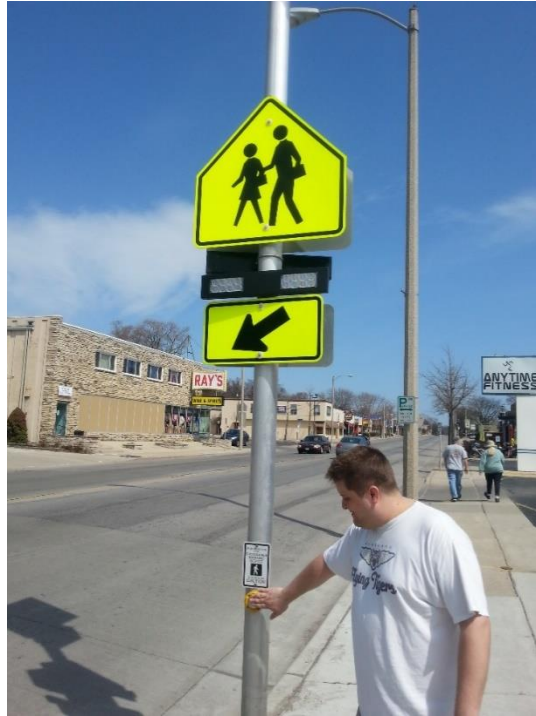


Figure 10. A rectangular rapid flashing beacon (RRFB), activated by a push-button, was installed at this crosswalk in Wauwatosa, Wisconsin (photo: 2014). The RRFB is the module with flashing lights mounted between the school crosswalk sign and arrow plaque. RRFBs have been found to be effective at encouraging drivers to yield to crossing pedestrians.

5 Building blocks of this report

This report is based on a number of information “building blocks”: public input, field surveys (Walking Office Hours), other planning documents, and stakeholder coordination. This draft has been presented to Eliot’s advisory committees for review and has had preliminary Select Board review.

5.1 Public input

In May 2021, the Town published a news release on our website seeking input from residents on walking and bicycling improvements.



Figure 11. May 2021 website news release excerpt

50 communications were received by email or phone, or in-person, with about 40 received in the first week. With some communications talking about more than one corridor or topic, we collected 74 comments, 66 of which related to specific corridors.

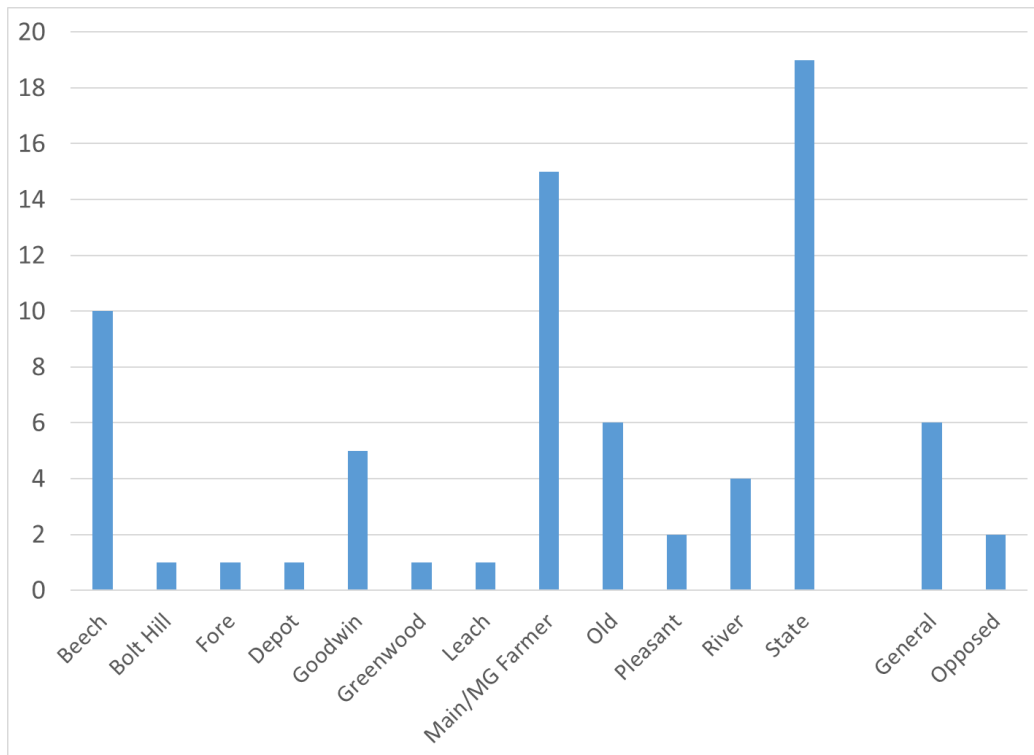


Figure 12. Comments received during spring/summer public input period, classified by street or road

Figure 12 shows comments by street and road. While two comments were categorically opposed to improvements, almost all comments expressed disfavor with the existing conditions for walking or bicycling in a particular corridor, or suggested walking or bicycling improvements, so the number of comments can be seen as a proxy for comparing the level of expressed demand for improvements between different corridors.

The three most popular corridors were State Rd. (19), Main St./Moses Gerrish Farmer Rd. (15), and Beech Rd. (10). Old Rd. (6), Goodwin Rd. (5), and River Rd. (4) collectively emerged as the second-most popular tier. All other corridors listed received 1-2 comments. General comments pertained to universal design or maintenance topics, such as wider shoulders, “Share the Road” signs, and roadside brush trimming, without naming specific corridors.

Additional public input was collected during a Public Information Meeting on September 28, 2021, and informs this report. Additional email input was prompted by the public announcement for the meeting.

Additional comments were collected in November and December 2021 during the “final round” of public input on the draft report.

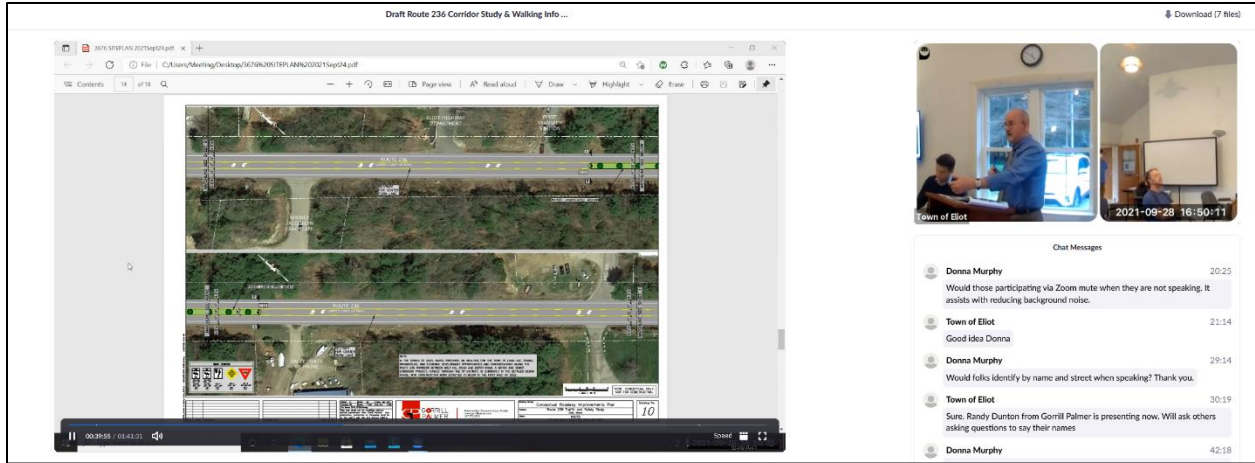


Figure 13. Excerpt of the recording of the September 28, 2021, public information session, which was held in-person with a remote Zoom option. The meeting gave an update and collected public input on the draft Route 236 Corridor Study as well as town-wide walking and bicycling priorities.

5.2 Walking Office Hours

This summer, Town staff conducted four Walking Office Hours to collect additional public input while assessing field conditions along certain corridors. We walked along the side of the road taking note of the roadside terrain, features, property markers, vegetation, sight distance, and other conditions that would inform how feasible it would be to add walking and-or bicycling facilities. We also observed how different modes of transportation used the corridor and interacted with each other. These were planning-level assessments and not professional engineering opinions.



Figure 14. Photo from Old Rd. Walking Office Hours

In advance of each Walking Office Hours, we notified people who had commented on that particular corridor, and who provided their contact information as part of the spring/summer public input, of the approximate times we would be walking past certain intersections. Since many of them lived on the corridor itself, they had the opportunity to meet us in their front yards and provide additional input. We also talked to some of their family members and neighbors, who had not previously provided input.

The Walking Office Hours were:

- Beech Rd. (State Rd. to Route 236) – May 24, 2021 – 4:00pm to 6:00pm
- State Rd. (Beech Rd. to Bolt Hill Rd.) – June 2, 2021 – 4:00pm to 6:00pm
- Main St./Moses Gerrish Farmer Rd. (State Rd. to Bolt Hill Rd.) – June 14, 2021 – 3:30pm to 6:00pm
- Old Rd. (State Rd. to River Rd./Fore Rd.) – August 18, 2021 – 4:00pm to 5:30pm

5.3 Stakeholder coordination

Town staff have been in communication with partner agencies during this process. This includes KACTS and MaineDOT's Bicycle and Pedestrian Coordinator. Two recent meetings with these agencies have occurred to discuss active transportation improvements. A May 20, 2020, meeting focused on funding options and included a drive down Main St. An August 24, 2021, meeting focused on funding options for walking and bicycling facilities, the potential for road signage improvements, and MaineDOT's demonstration project program. It included a walk down State Rd. from Town Hall to the intersection of Beech Rd. Representatives of the Planning Board and AIP Committee were present at this meeting and offered their perspective.



Figure 15. MaineDOT, KACTS, and Town representatives walk down State Rd. after visiting the Beech Rd.-State Rd. intersection

5.4 Concurrent projects and studies

The Town is currently moving forward with the Route 236 Water-Sewer Project. This project will primarily build a sewer line between Bolt Hill Rd. and Arc Rd. and a water line between Beech Rd. and Arc Rd. It was approved by voters in November 2020 and is being funded by the Route 236 tax increment financing (TIF) district and an anticipated state loan. Another part of the project is the construction of sewer force mains on Beech Rd. and State Rd. to the existing sewer system near Mount Pleasant Cemetery. As of this report, the project is in final design. Phase 1, the Route 236 work, is expected to begin construction in spring of

2022, and Phase 2, the construction of the Beech Rd. and State Rd. force mains, is expected to begin construction in summer of 2022.

SMPDC/KACTS and the Town are finalizing the Route 236 Corridor Study covering Beech Rd. to Route 101 (Goodwin/Dover Rd.). The draft study recommends traffic and safety improvements. It complements a similar study for the section from Stevenson Rd. in Kittery to Beech Rd., finalized in 2019. Some aspects of the current draft Route 236 Corridor Study informed this report. The study was presented and reviewed at the September 28, 2021, Public Informational Meeting.

5.5 Eastern Trail and East Coast Greenway

The Town of Eliot is on the route of Maine's Eastern Trail, which is itself part of the 3,000-mile East Coast Greenway stretching from Calais, Maine, to Key West, Florida. The East Coast Greenway is currently a mix of shared use paths (about one-third of the route) and on-road segments (about two-thirds), with a goal of adding more shared use paths over time. The route through Eliot is on-road. Several recommendations in this report seek to improve the on-road route with a sidewalk and paved shoulders, with one important part of the route recommended to see a new shared use path. The 2009 Comprehensive Plan notes that Eliot stopped paying dues to the Eastern Trail Management District (ETMD), but recommends that Eliot's support for the Eastern Trail should continue (Outdoor and Active Transportation Resources, Strategy 2.5).

US Bike Route 1 also passes through Eliot. This long-distance designated bike route has the same endpoints (Calais to Key West) and shares many segments with the East Coast Greenway.

By improving concurrent sections of the Eastern Trail, East Coast Greenway, and US Bike Route 1, Eliot can better realize the economic benefits these routes provide to local communities. Both the Eastern Trail Alliance and the East Coast Greenway Alliance have done several economic impact studies suggesting significant economic, tourism, and health benefits. Those resources are listed in the References section at the end of this report.

5.6 Committee and Select Board review

This draft report has been presented for review by advisory committees and the Select Board in Fall 2021. This final draft includes a list of priority corridors and improvement types to inform next steps, including beginning the design process and seeking external grant funding primarily for projects listed as immediate- or short-term.

Committee reviews to date have included: AIP Committee, Planning Board, Budget Committee, and Conservation Commission. On November 15, 2021, the Select Board reviewed a summary of the report and voted to recommend that it be released for a final public comment period before being brought back for consideration of approval.

6 Recommended active transportation improvements by corridor

These recommended active transportation improvements reflect public input and other “building blocks” listed in the previous section. All recommendations are “planning level”, meaning they are not based on an engineering assessment and may be refined during the project design phase. All design efforts should seek to coordinate with abutting property owners, local/state agency staff, and other applicable stakeholders. Generally, the improvements would seek to stay as much as possible within current public R/W. Surveying and design would confirm the extent of any needed R/W acquisition (e.g. permanent or temporary construction easements). Federally-funded projects have specific standards for procurement, environmental documentation, R/W acquisition and protection of property rights, and construction. Some projects may have impacts to wetlands just off the side of the road. The design phase of these projects should include early consultation with resource agencies (e.g. Maine Department of Environmental Protection) on applicable permitting requirements.

Sidewalks on one side of the road

Where a sidewalk or sidepath is recommended, it is mostly recommended on only one side of the road. While it is ideal to have sidewalks on both sides of most roads – unless it is not feasible, is cost prohibitive, or is clearly not needed given the context – the principle in this report is to focus more on extending the sidewalk network than perfecting walking conditions on any one segment. With limited grant funding and local match dollars available, it would be difficult to justify an approach that builds sidewalks on both sides of a high-demand road if it preempts the ability to build one sidewalk on two high-demand roads. Where bicycle facilities are proposed, they are mostly in the form of paved shoulders on both sides of the road. Paved shoulders are narrower and tend to have a lower cost per square foot than sidewalks.

Priority projects

A key goal of this report is to provide a **working prioritization of active transportation projects** in Eliot, one that has been crafted based on public input and advisory committee review and ultimately approved by the Select Board. This will serve as a clear guide for staff for seeking grant funding and beginning the design process. If approved, staff would begin to do so for the projects listed **immediate** or **short term**, taking into account that some non-active transportation projects may also be high priority. If and when a comprehensive active transportation plan is developed, it would presumably supersede, augment, and/or modify this prioritization. Until then, this report could serve as the go-to document.

6.1 State Rd.

State Rd., with between 1,500 and 3,000 annual average daily traffic (AADT – a weighted average of the number of vehicles per day), is the primary street running through the Village and threading together the Elementary School, the Town Offices, the Police and Fire Departments, Hammond Park, and the William Fogg Library. State Rd. has emerged as a top candidate for extension of active transportation facilities because it received the most supportive public comments and because it has the only existing sidewalk in town (except for a short portion of Old Rd. in front of the Library).

The vision for State Rd. in this report is to have a contiguous sidewalk between the Grange Hall and Bolt Hill Rd. with paved shoulders along the entire length in Eliot. This includes an immediate-term project to install a sidewalk and paved shoulders between Beech Rd. and Bolt Hill Rd. in conjunction with the Route 236 Water-Sewer Project's force main installation. This will be a timing challenge as the design of the former needs to "catch up" with the latter if the active transportation improvements are to be tacked onto the end of the force main installation in late 2022. However, the approval/endorsement of this report is a first step. Part of this project is the filling of the short gap between the existing sidewalk's end and Beech Rd., as well as some new and upgraded crosswalks.

From there, the improvements are seen extending out over time, with paved shoulders extending from the Grange Hall to Fore Rd., followed later by the same treatment for segments further north.

6.1.1 State Rd.-Route 236 intersection

Project

Intersection active transportation improvements (as part of future signalization)

Description

The (Draft) Route 236 Corridor Study finds that this intersection meets traffic signal warrants, which means that traffic volume and-or crash data suggest a traffic signal should be installed there, subject to further engineering study. If and when a traffic signal is installed, the project should include provisions for helping pedestrians and cyclists cross the road. This could include at least one marked crosswalk with pedestrian signal heads and ramps.

Implementation timeline

Mid to long

Considerations

- Intersection of two state-maintained roads. Coordinate with MaineDOT.
- Ensure signal detection for vehicles can also detect bicycles

Benefits

- Allows people walking and cycling to cross Route 236 with the benefit of a signal

Photo



Figure 16. Google Streetview image of a person cycling waiting to turn onto or cross Route 236 at State Rd.

6.1.2 State Rd.: Route 236 to Worster Rd.

Project

Paved shoulders

Description

Install paved shoulders on this nearly half-mile segment. Along with the segments below, this project would complete the addition of paved shoulders along Route 103 from Route 236 to the village.

Implementation timeline

Long

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Based on MaineDOT guidance for this context, a shoulder width of 3-4 ft. may be appropriate.

Benefits

- Provides space for people to bike outside of the travel lane
- Provides a more level, tractable space (compared to a gravel or grass shoulder) for people to walk along the road, in the absence of a sidewalk
- May reduce the need for people driving to cross the centerline to pass people on foot or on bike
- Increases the roadside recovery area, allowing people driving who begin to drift off the roadway a clear, flat area to help them to regain control of their vehicle

Public comments

“...I am suggesting extending the existing bike shoulders on both sides of Rte. 103 from the Fogg Library area west to the junction of 236...”

6.1.3 State Rd.: Worster Rd. to River Rd.

Project

Paved shoulders

Description

Install paved shoulders on this 1.2-mile segment of State Rd., which differs from the segments further south (see below projects) in that there is no roughly parallel, contiguous, lower-traffic route, like Fore Rd. and River Rd. It is the only way for people engaging in active transportation to travel north and south for a longer distance, west of Route 236.

Implementation timeline

Long

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Based on MaineDOT guidance for this context, a shoulder width of 3-4 ft. may be appropriate.
- One pinch-point is the bridge over Sturgeon Creek, with the bridge rails and approach guardrails just off the travel lane. This means that achieving contiguous shoulders of adequate width along this whole stretch may be a long-term project, but shorter subsections of it that do not include the bridge and its approaches could potentially be given paved shoulders sooner than that.

Benefits

- Provides space for people to bike outside of the travel lane
- Provides a more level, tractable space (compared to a gravel or grass shoulder) for people to walk along the road, in the absence of a sidewalk
- May reduce the need for people driving to cross the centerline to pass people on foot or on bike
- Increases the roadside recovery area, allowing people driving who begin to drift off the roadway a clear, flat area to help them to regain control of their vehicle
- Improves an on-road portion of the Eastern Trail
- Enhances an active transportation/recreation loop including State Rd., Cedar Rd., and Depot Rd.

Public comments

“...I am suggesting extending the existing bike shoulders on both sides of Rte. 103 from the Fogg Library area west to the junction of 236...”

6.1.4 State Rd.: River Rd. to Fore Rd.

Project

Paved shoulders

Description

Install paved shoulders on this portion of State Rd., which is just over a mile.

Implementation timeline

Mid

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Based on MaineDOT guidance for this context, a shoulder width of 3-4 ft. may be appropriate.
- Roadside conditions for installing a shoulder here may be somewhat more challenging than between Fore Rd. and State Rd., as it has some utility poles, larger trees, and guardrail close to the edge of pavement. However, some sections do have an existing ~2 ft. gravel shoulder.

Benefits

- Provides space for people to bike outside of the travel lane
- Provides a more level, tractable space (compared to a gravel or grass shoulder) for people to walk along the road, in the absence of a sidewalk
- Increases the roadside recovery area, allowing people driving who begin to drift off the roadway a clear, flat area to help them to regain control of their vehicle
- May reduce the need for people driving to cross the centerline to pass people on foot or on bike
- Improves an on-road portion of the Eastern Trail

Public comments

“While I live on Jennie Ln and absolutely love it, I feel the dangers of state road inhibit me from being able to enjoy the other beautiful parts of the town or even to take my bike to go for a long bike ride.”

“I have walked State Road from Jennie Lane to the Town Hall and west to Cedar Road. Although I didn’t feel unsafe I do see that on-coming traffic pulls significantly toward the center of the road once they see me. If there is traffic in both directions the cars often will slow down significantly. It seems that extending the width of the shoulders would make both pedestrians and drivers more comfortable.”

6.1.5 State Rd.: Between Jennie Ln. endpoints

Project

Sidewalk

Description

The sidewalk would extend about 800 ft. to connect each end of Jennie Ln. Between lower-traffic, lower-speed Jennie Ln. and this sidewalk, a walking loop would be created.

Implementation timeline

Uncertain

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Installation on the west side of State Rd. is recommended to avoid the need to cross State Rd. as part of the walking loop. Roadside terrain also appears more challenging on the east side.
- This is seen as a neighborhood-based and neighborhood-funded project, as connectivity benefits to destinations beyond Jennie Ln. are limited. However, it could be potentially coordinated with the above paved shoulder project for greater cost efficiency of construction.

Benefits

- Completes a walking loop when paired with walking on the lower-traffic, lower-speed Jennie Ln. A sidewalk along State Rd. removes a potential barrier/discouragement to walking this full loop.

Public comments

“We recently moved to Jennie Lane off 103 [State Rd.] and soon after started our family. While I was on maternity leave I felt very fortunate to have our neighborhood to walk through, however there’s the small section on 103 that connects the two ends of the road. After a couple of hair raising walks with the stroller on even that small stretch I now turn around and walk back through the neighborhood because I don’t even want to risk it on 103...The longer we’ve lived here, the more I feel the need for the sidewalk to continue from town, all the way down 103. The road is so winding and with so little shoulders I am constantly swerving around walkers and runners sharing the road. It’s not that people are driving dangerously, it’s just that the road doesn’t allow for much visibility. It’s also a ‘heavily’ used road for pedestrians – there is never a time when I don’t see someone out...Furthermore, it would be such a great way to continue to connect our town and allow us to move around without a car in a way that is safe for everyone”

6.1.6 State Rd.: Fore Rd. to Old Rd.

Project

Paved shoulders

Description

Install paved shoulders along this stretch of State Rd., which is about a mile and leads to a cluster of destinations on its south end, including the William Fogg Library and Grange Hall.

Implementation timeline

Short to mid

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Based on MaineDOT guidance for this context, a shoulder width of 3-4 ft. may be appropriate.
- Roadside conditions suggest relatively favorable conditions for adding shoulders. The road is relatively straight, has limited driveway cuts, has utility poles and trees that are mostly further set back from the edge of pavement, and already has portions of a gravel shoulder.

Benefits

- Provides space for people to bike outside of the travel lane
- Provides a more level, tractable space (compared to a gravel or grass shoulder) for people to walk along the road, in the absence of a sidewalk
- Increases the roadside recovery area, allowing people driving who begin to drift off the roadway a clear, flat area to help them to regain control of their vehicle
- May reduce the need for people driving to cross the centerline to pass people on foot or on bike
- Improves an on-road portion of the Eastern Trail
- Enhances an active transportation/recreation loop including Old Rd. and Fore Rd.

Public comments

“I have walked State Road from Jennie Lane to the Town Hall and west to Cedar Road. Although I didn’t feel unsafe I do see that on-coming traffic pulls significantly toward the center of the road once they see me. If there is traffic in both directions the cars often will slow down significantly. It seems that extending the width of the shoulders would make both pedestrians and drivers more comfortable.”

“My husband and I have walked in Eliot almost daily for many years. We recently moved to State Road...and would love to see a wider shoulder on State Road heading into town coming up the hill to the library”

6.1.7 State Rd.: Grange Hall to Old Rd.

Project

Sidewalk

Description

Install a sidewalk extending from the existing sidewalk, which ends just north of Old Rd., across from the William Fogg Library. This project would extend it north by about 300 ft. to reach the Grange Hall.

Implementation timeline

Short to mid

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Coordinate with Eliot Grange to explore how best to design the sidewalk as it approaches the hall, considering driveway and parking access.

Benefits

- Creates a walking connection to a new destination
- Enhances the walking connection between the two ends of the Douglas Memorial Woods path

Photos



Figure 17. State Rd. near the Library (background left). The sidewalk ends shortly after the crosswalk, where a ~300-ft. extension would bring it to the Grange Hall and Douglas Memorial Woods trail entrance.

6.1.8 State Rd.: Old Rd. to Moses Gerrish Farmer Rd.

Project

Crosswalk improvements

Description

At Old Rd., Eliot Elementary School, and the Meet Market, upgrade the existing crosswalks to have high-visibility, ladder-style pavement markings, be oriented perpendicular to the roadway to minimize crossing distance, have ADA-compliant ramps and sufficient-width walkways on each end, and have supplemental warning signage. Consider additional safety features such as pedestrian-activated RRFBs.

Implementation timeline

Short

Considerations

- State-maintained road. Coordinate with MaineDOT. Seek upgrades consistent with MaineDOT's crosswalk policy.
- Some potential areas of improvement for these crosswalks as they currently exist include:
 - lack of signage or signage obscured by vegetation
 - skewed crosswalk angle
 - lack of ADA-compliant ramps and sufficient-width landing areas and walkways at one or both ends

Benefits

- Improves visibility of pedestrian crossing points
- Reduces crossing distance
- Improves accessibility for people using wheelchairs, using other mobility assistive devices, and facing mobility challenges
- Enhances Safe Routes to School (SRTS)



Figure 18. Google Streetview image (September 2019) showing the crosswalk at State Rd. and Moses Gerrish Farmer Rd.

6.1.9 State Rd.: Moses Gerrish Farmer Rd. to Bolt Hill Rd.

Project

Sidewalk and paved shoulders

Description

Install a sidewalk on one side of the road and paved shoulders on both sides of the road. This part of State Rd. received substantial support for active transportation improvements during the spring/summer public input phase, and about 10 abutting residents expressed their support during Walking Office Hours. In late 2022, the Route 236 Water-Sewer Project's State Rd. force main will be installed from Beech Rd. to the crest of the hill in front of Mount Pleasant Cemetery, near Shapleigh Dr., where a gravity sewer line begins heading downhill. The construction of the sewer line provides a window of opportunity and potential cost efficiency for other construction to take place within the corridor to address community input.

As part of this project, fill in the short "gap" on the northeast side between the end of the current sidewalk (near Moses Gerrish Farmer Rd.) and Beech Rd. with construction of a new sidewalk and paved shoulders.

Implementation timeline

<i>Immediate</i>

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Seek to begin an expedited engineering/design phase as soon as possible align with the Water-Sewer Project implementation. Seek external grant funding for the design.
- Each side of the road has pros and cons for locating the sidewalk. However, due to roadside conditions (including the location of utility poles), the location of the proposed sewer main on the southwest side of the roadway, cross-street intersections, and the Mount Pleasant Cemetery frontage, at a planning level, the southwest side of the road is seen as a more practicable option for the sidewalk. Consider crosswalks at intersections such as Beech Rd., Douglas Way, Greenwood St., and Bolt Hill Rd. to enhance access from the northeast side.
- Consider working with historic preservation stakeholders on including interpretive signage for Mount Pleasant and Brooks Cemeteries.
- Based on MaineDOT guidance for this context, a shoulder width of 3-4 ft. may be appropriate.
- Southeast of the cemetery, heading toward Bolt Hill Rd., there is an existing narrow shoulder along with an asphalt curb. Along this stretch, the focus should be the installation of the sidewalk, with some locations receiving spot widening for the paved shoulders, where practicable.

Benefits

- Improves walking access to the Elementary School (Safe Routes to School)
- Connects to lower-traffic cross-streets such as Douglas Way, Greenwood St., and Bolt Hill Rd.
- Achieves potential cost efficiencies as part of the roadway is already planned to undergo excavation for the sewer line
- Improves an on-road portion of the Eastern Trail

- Provides space for people to bike out of the travel lane

Public comments

“[We] are expressing our strong desire for a sidewalk along State Rd, South East of the Village. Possibly up to the cemetery?”

“It would be wonderful to have sidewalks starting at the Eliot/Kittery line on State Road all the way to Frost Tufts...”

“I learned recently that Eliot will be looking at how we can be a more friendly community for walkers and bicyclists. I think this is a wonderful effort and was made that much more important in my mind during this last year due to the pandemic...As a State Road resident...we see a lot of walkers, runners and bikers daily. I have three small children and we would love to see more sidewalks in Eliot so that they can safely walk to playgrounds and the library...I would like to see our stretch of State Road added to one of the corridors for the walking office hours. Living across from one of the cemeteries for the last 10 years has shown me how active they can be and how lovely they are as a public green space in our town. Having a sidewalk would make it much easier to access these beautiful spaces.”

“I live on Douglas Way, not too far from the Elementary School. As much as I would love to walk my daughter to and from school, it isn't safe to do so past Beech Road. My request would be to extend the sidewalk along State Road from where it ends at the corner of Beech Road as far as possible or at least to Bolt Hill Road.”

“I would love to see the sidewalk continued up State Road to the [cemetery] at Greenwood St. That stretch of road has a particularly narrow shoulder, in a curve, with cars speeding down the hill to turn at Beech.”

“I've lived on State Road for twenty-five years. I used to enjoy walking on the street, but can no longer do that. It has become too dangerous. There's a lot more traffic than in the past, and a lot more trucks...A lot of driving above the speed limit as well...There is still a lot of foot traffic on State Road (joggers, dog walkers, and mothers with little children and baby carriages. I worry about their safety...I would like to see the sidewalk in front of the elementary school extended down to Greenwood Street.”

“I run and walk around town daily, and would love to see sidewalks extended all along state road from the town offices, past mount pleasant and all the way to the kittery line. Things definitely get tight and dangerous along that road!”

“As a resident of Eliot for 30 years and a life-long bicyclist, I am suggesting extending the existing bike shoulders on both sides of Rte. 103 from the Fogg Library area west to the junction of 236 and from the elementary school area east to the Kittery town line.”

“We thoroughly approve of your sidewalk idea. We would enjoy using it, and would enjoy people walking past our house using it. Let us know how we can support more sidewalks in Eliot.” [residents live on State Rd. near Bolt Hill Rd.]

“My household is really excited about the possibility of getting a sidewalk [on State Rd.]. We'd be happy if you put it in front of our house. We won't even mind shoveling it in the winter.”

Photos



Figure 19. State Rd. at Douglas Way, looking northwest



Figure 20. State Rd. at Mount Pleasant Cemetery, looking southeast

6.2 Main St./Moses Gerrish Farmer Rd.

Main St. and Moses Gerrish Farmer Rd. (Route 103) received the second-most public comments. Many spoke to active transportation facilities connecting from State Rd. to the Boat Basin. This support was reiterated during Walking Office Hours. In addition to the Boat Basin, Green Acre guests sometimes walk between the main campus and the Fellowship House near Mast Cove Rd. and could benefit from a sidewalk. The curve at Mast Cove Rd. was cited as an area of concern, and the Walking Office Hours confirmed a lack of sight distance there.

In South Eliot, Main St. sees about 1,300 AADT. Abutting uses are primarily smaller-lot residential with a few small destinations mixed in. The roadside environment for building walking and bicycling infrastructure appears a little more challenging than on State Rd. However, improvements on both up to or through Greenwood St. would create an active transportation/recreation loop assuming walking/running/bicycling in the road on Greenwood St. would be more comfortable given the lower speeds and traffic volumes.

6.2.1 Main St./Moses Gerrish Farmer Rd.: State Rd. to Kittery Town Line, and River Rd.: Full Length

Project

Conduct a “riverways” feasibility study (see also Section 6.5.1)

Description

Conduct a feasibility study to explore active transportation improvements on two corridors along the Piscataqua River: Main St./Moses Gerrish Farmer Rd. (Route 103) and River Rd. Each of these corridors, especially Main St., had substantial public input seeking improvements, but each has its challenges, such as roadside conditions along certain segments. For cost efficiency, one study is envisioned that would include both roads under the “riverways” theme. The study could explore projects of various scopes, improvement types, and implementation timelines – from quick-build, participatory demonstration projects to short- and mid-term permanent projects to aspirational “dream big” long-term projects.

While the study could look at the whole stretch of both roads, Main St. potential focus areas include:

- **Moses Gerrish Farmer Rd./Main St. – State Rd. to Greenwood St.:** there is strong demand for better active transportation access between the Village and the Boat Basin, a major community destination, as well as the activity hubs of Green Acre and its Fellowship House, but challenges include a constrained roadside environment and the intersection of Mast Cove Rd., which is a Y intersection with limited sight distance around the curve. In this focus area, both on-road and potential off-road alternatives could be evaluated. (See Sections 6.2.2 and 6.2.3.)
- **Main St. – Bolt Hill Rd. to Pleasant St.:** there is an opportunity for improving pedestrian crossing conditions at these slightly offset T intersections, including a potential crosswalk that could be introduced as a demonstration project, short sidewalk segment, and stormwater improvements.
- **Eliot-Kittery connections:** ideas for active transportation connections between the two towns, including “dream big” ideas that would be aspirational and potentially long-term

Implementation timeline

Short

Considerations

- While this report makes specific recommendations for segments of Main St./Moses Gerrish Farmer Rd. and River Rd. (below), these could be “starting point” concepts that the study could explore further.
- The study could also include one or more Walk or Bike Audits, something the AIP Committee has looked into doing.

Benefits

- Assesses potential challenges and opportunities “on paper” before significant investment in detailed design and construction

6.2.2 Main St./Moses Gerrish Farmer Rd.: State Rd. to Mast Cove Rd.

Project

Sidewalk

Description

Build a sidewalk on one side of the road from State Rd. to Mast Cove Rd. The feasibility study could help determine the design and location of the sidewalk before proceeding to detailed design.

Implementation timeline

Mid

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Sight distance issues at the curve by Mast Cove Rd. may present a challenge to adding a marked crosswalk at this location. There is an existing informal path visible on the inside of the curve which may indicate where most of the roadside walking occurs.
- Roadside conditions and presence of driveways and stone walls are design challenges

Benefits

- Improves walking access to the Village, Boat Basin, and Elementary School (Safe Routes to School)
- Connects to lower-traffic cross-streets such as Mast Cove Rd.
- Alleviates need to walk in the road, especially along the lower-sight-distance curve

Public comments

“A sidewalk on Moses Gerrish Farmer Rd & Main St at least as far as the Boat Basin would make it much safer for those who now walk by the side of the road.”

“I walk and bike frequently in Eliot and would very much like to see additional sidewalks for safety, health promotion and allow for destination walking. A sidewalk along 103 ([Moses Gerrish] Farmer Road, Main Street, South Eliot Road in Kittery) would allow safe walking from the school and town hall area to the causeway (and beyond?)

“I am a strong supporter of getting more sidewalks in Eliot. I walk and drive frequently along 103 and both can feel a bit treacherous at times.” [commenter lives along or near Mast Cove Rd.]

Photos



Figure 21. Moses Gerrish Farmer Rd. looking toward Main St. during Eliot Festival Days. People parked along the east side of the road and walked in the road to get to the festival on State Rd.



Figure 22. The curve on Main St. near Mast Cove Rd.

6.2.3 Main St.: Mast Cove Rd. to Greenwood St.

Project

Sidewalk and paved shoulders

Description

This section of Main St. presents both significant opportunities to connect to destinations as well as some challenges. The feasibility study could help determine what alternative is most feasible and practicable, but a sidewalk and paved shoulders are recommended to represent an aspirational mid-term improvement for the purpose of this report. Public input for Main St. improvements has been strong.

Implementation timeline

Mid

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Sight distance issues at the curve by Mast Cove Rd. may present a challenge to adding a marked crosswalk at this location. There is an existing informal path visible on the inside of the curve which may indicate where most of the roadside walking occurs.
- Roadside conditions and presence of driveways, stone walls, and utility poles close to the road suggest close coordination during preliminary engineering/feasibility study with abutting property owners.
- Based on access to destinations, a sidewalk on the south (river) side may be more favorable. If this location is selected, a crosswalk at Greenwood St. is advised.
- Paved shoulders could be considered as an interim phase, or where feasible paired with a sidewalk, but a sidewalk is ideal to address walking demand in this corridor.

Benefits

- Improves walking access to the Village, Boat Basin, and Eliot Elementary School (Safe Routes to School), and between Green Acre campus buildings
- Connects to lower-traffic cross-streets such as Mast Cove Rd. and Greenwood St.
- Alleviates need to walk in the road, especially along the lower-sight-distance curve
- Would help complete an active transportation/recreation loop when considered with the State Rd. project above and walking along existing lower-traffic Greenwood St.

Public comments

“A sidewalk on Moses Gerrish Farmer Rd & Main St at least as far as the Boat Basin would make it much safer for those who now walk by the side of the road.”

“I walk and bike frequently in Eliot and would very much like to see additional sidewalks for safety, health promotion and allow for destination walking. A sidewalk along 103 ([Moses Gerrish] Farmer Road, Main Street, South Eliot Road in Kittery) would allow safe walking from the school and town hall area to the causeway (and beyond?)”

[Comment on draft report] “I was very pleased to see the recommendation to create a sidewalk between State St and the causeway on Main St. Living on Maine St I would say I see an average of around 50 people a day walk by Green Acre. I walk between Green Acre and Fellowship House almost daily and cars are always veering around me. As was mentioned in the report, our guests often walk from our main campus to Fellowship House as well, especially in the summer. This may present a situation that is unusually unsafe as these guests often walk in groups, taking up more space as well as being distracted by talking with each other as they walk...Our guests also sometimes walk from Green Acre down Greenwood to the Mt Pleasant cemetery to visit the graves of historic Baha’is who are buried there. This walk is much less frequent than the walk to Fellowship House but it still occurs. My family and I also regularly walk from Green Acre to Pleasant St and down Pleasant St. We always feel a bit unsafe on Main St. I’m not recommending anything other than what I read in the report, just giving more support for a sidewalk from State St to at least Pleasant St if not all the way to Dennet Rd.”

Photos



Figure 23. Main St. at Green Acre’s campus, showing both a destination and the lack of dedicated walking or bicycling space

6.2.4 Main St.: Greenwood St. to Bolt Hill Rd.

Project

Sidewalk and paved shoulders

Description

Build a sidewalk on one side of the road as well as paved shoulders.

Implementation timeline

Mid to long

Considerations

- State-maintained road. Coordinate with MaineDOT
- Roadside conditions may be generally less challenging for active transportation improvements than further northwest.
- Potentially phase after active transportation improvements from State Rd. to Greenwood St.

Benefits

- Improves walking/bicycling access to the Boat Basin and between the Village and South Eliot
- Improves an on-road portion of the Eastern Trail

Public comments

“I live in the village area of town at the base of Bolt Hill Rd and we have lots and lots of neighborhood walking happening here. I see the most dangerous intersections at Main St where Bolt hill intersects and also where Pleasant St intersects Main. I believe sidewalks would be well suited on Main Street and some pedestrian crosswalks would be great to the side roads.”

“I walk and bike frequently in Eliot and would very much like to see additional sidewalks for safety, health promotion and allow for destination walking. A sidewalk along 103 ([Moses Gerrish] Farmer Road, Main Street, South Eliot Road in Kittery) would allow safe walking from the school and town hall area to the causeway (and beyond?)”

Photos



Figure 24. Main St. near Park Ave.

6.2.5 Main St.: Bolt Hill Rd. to Pleasant St.

Project

Sidewalk and crossing improvements

Description

Install an approximately 150 ft. sidewalk as well as crossing improvements at the offset intersections of Bolt Hill Rd. and Pleasant St. Consider a bioswale or rain garden for stormwater management.

Implementation timeline

Short

Considerations

- State-maintained road. Coordinate with MaineDOT.
- This short sidewalk and crossing improvements at each intersection would help to “bridge a gap” between the lower-traffic Bolt Hill Rd. and Pleasant St., by creating a dedicated walking facility separate from the Main St. travel lane
- Consider applying for the Imagine People Here demonstration program (see Section 8.2.2), which funds decorative crosswalk projects.
- Consider a small stormwater management feature at the northeast corner of Main St. and Bolt Hill Rd. Coordinate with property owner on the north side of the road on sidewalk potential.

Benefits

- Bridges a “gap” by allowing people to connect and cross between Bolt Hill Rd. and Pleasant St. and not walk in the travelway or along the shoulder of this short stretch of Main St.
- If implemented as a demonstration decorative crosswalk, it could bring the community together for a crosswalk painting and bioswale planting volunteer work day

Public comments

“I live in the village area of town at the base of Bolt Hill Rd and we have lots and lots of neighborhood walking happening here. I see the most dangerous intersections at Main St where Bolt hill intersects and also where Pleasant St intersects Main. I believe sidewalks would be well suited on Main Street and some pedestrian crosswalks would be great to the side roads.”

“My neighborhood on Main Street has 2 areas where we could benefit from improving walking and biking/cycling conditions..... one is the “loop” that runs along Main Street, goes across Pleasant street by the water and small boat launch and then turns back along Main Street heading back toward Spinney creek. This area experiences a lot of walkers, cyclists, kids playing and duck crossings. Sidewalks would be great as well as official animal crossing signs.”

More information

5.13 – Sidewalks

Section 5.13 details the requirements for sidewalk installation. In general, sidewalks should be promoted to enhance accessibility and promote alternative transportation.

NOTE: Each municipality should consider its priorities for sidewalks and adjust these standards accordingly. These standards incorporate the following best practices:

- 1) Promote the safety and accessibility of sidewalks for all users by complying with ADA requirements and recommendations.
- 2) Incorporate LID techniques such as native plant buffer strip planting and porous pavement options.

Resources referenced in this section include:

[Maine Stormwater Best Practices Manual](#)

Figure 25. Excerpt from SMPDC's "Model Road Design Standards" guide recommending that stormwater management low-impact development (LID) features be incorporated with sidewalk projects.

6.3 Beech Rd.

Beech Rd. is the only road that joins State Road and Route 236 between Bolt Hill Rd. – a mile to the southeast – and Depot Rd. – nearly 2 miles to the northwest. As such, it is an important route today for driving, and it could be an important one in the future for people choosing to use other modes of transportation, but with an AADT of 2,700 and a posted speed limit of 30 mph, dedicated facilities for active transportation modes are recommended.

The existing conditions are challenging for people using active transportation, as the roadside has ditches and underbrush that are onerous to traverse. Trash was observed in the ditch, and multiple ticks were experienced, during the Beech Rd. Walking Office Hours. One abutter (see below) reported in an email comment that the amount of roadside poison ivy in the warm season dissuades them from moving off the travelway to avoid vehicles. Vertical curves limit sight distance at certain points.

Beech Rd. links two destination clusters – the Village and Eliot Commons. The State Rd.-to-Route 236 segment is alluded to in the 2009 Comprehensive Plan’s recommended transportation strategy to “Develop a plan to enhance access and safety for pedestrians and bicyclists between the Eliot commons area and Eliot village”. The segment is also a Safe Routes to School focus as a route near the Elementary School, and it serves senior/affordable housing on or near the corridor. Because of this destination connectivity, access improvements for vulnerable road users, significant public input, and the window of opportunity created by the Route 236 Water-Sewer Project, this segment is the focus of this report, though a logical subsequent phase could be from Route 236 to Hanscom Rd.



Figure 26. Beech Rd. looking northeast, about midway between State Rd. and Route 236

6.3.1 Beech Rd.: State Rd. to Route 236

Project

Sidewalk and paved shoulder

Description

Install a sidewalk on one side of the road and paved shoulders on one or both sides of the road from Route 236 to State Rd., a distance of just under a mile. The Route 236 Water-Sewer Project is installing a sewer force main on Beech Rd. from Ruth Ln./Baran Place to State Rd. As with State Rd., the opportunity exists to pair an active transportation improvement with restoration of the pavement after the excavation for the sewer line.

Implementation timeline

<i>Immediate</i>

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Coordinate with appropriate utility companies for where Beech Rd. crosses the utility corridor
- Roadside conditions, including slope, a cemetery, stone walls, wetlands, large trees, and utility poles create design challenges. For these and other reasons, active transportation facilities may need to vary at different points along the road, something to be evaluated during design.
 - Closer to Route 236, two potential alternatives could include a sidewalk on one side (the southeast side, with Eliot Commons and Baran Place, may be more favorable) and paved shoulders on both sides, or an 8-10-ft. sidepath on the southeast side.
 - Closer to State Rd., a sidewalk may be more favorable on the northwest side, as it avoids the utility poles and cemetery and is on the side where the sewer line excavation will be located, while a shoulder should be considered on the southeast side.
- Based on MaineDOT guidance for this context, a shoulder width of 3-4 ft. may be appropriate.
- Begin an expedited engineering/design phase as soon as possible with a goal of achieving final design by summer 2022 to align with construction sequencing of the Water-Sewer Project and associated pavement restoration. Seek external grant funding for the design.
- A shoulder on the southeast side may enable easier mail delivery and vehicle passing, allowing the mail truck to pull further off the road (Figure 28).
- Advocate for MaineDOT to add a high-visibility marked crosswalk, with pedestrian signal infrastructure, at the Route 236-Beech Rd. signalized intersection as part of its pavement overlay project in 2022. The southeast leg (Cumberland Farms side) may be a favorable location. An exclusive pedestrian phase or leading pedestrian interval (LPI) should be evaluated. Because of the number of lanes to be crossed (5), consider widening the median at the intersection to at least 6 ft. to create a mid-crossing pedestrian refuge. This would also enhance access to the median itself, where a community group is interested in maintaining a planting to beautify the median.

- Marked crosswalks should also be implemented at the stop-controlled Beech Rd.-State Rd. intersection (Figure 27). Appropriate locations for other marked crosswalks along the route should be considered where there is at least 250 ft. of stopping sight distance.

Benefits

- Provides better active transportation options for traveling between the Village and Route 236 destinations
- Improves active transportation access to the Elementary School (Safe Routes to School)
- Improves active transportation options for seniors and affordable housing communities
- Achieves potential cost efficiencies as part of the roadway is already planned to undergo excavation for the sewer line
- Provides space for people to bike out of the travel lane
- Connects to the proposed project on State Rd.

Public comments

“There are still quite a few people who dare walk, run and bike Beech road so I know this would be a great addition”

“We live at [###] Beech Road. I would love to be able to walk with and without my dogs on this road without being fearful. In the late summer and fall there is so much poison ivy that I can’t even move off the pavement with a car comes by.”

“I would really like to see shoulders put on Beech Road in Eliot when the sewer line goes in”

“The new sewer will run up Beech Rd. to State rd. then south on State...As long as they will tear up both Beech and Sate for sewer, perhaps some of the sidewalk/bicycle engineering, construction costs could be shared by the sewer project?”

“I think the two priorities should be ...Beech road from Eliot Commons to elementary school. Another heavily traveled walking road!”

“Extend the sidewalk up Beech Road between State Road and Route 236.”

(During the Walking Office Hours, a parent reported that their child’s school bus stop is only a short distance down Beech Rd., but they drive them there because of safety concerns with walking)

[Comment on draft report] “I’ve been walking & biking the roads in Eliot heavily for the last 20 years and the improvements you’ve recommended in this report are so important! Currently it’s just plain dangerous to go for a walk or a ride on most of our roads as we are forced to share busy roads with drivers who are often speeding & distracted. It’s terrible...I’m particularly pleased to see that you are recommending a sidewalk and 1 (or hopefully 2) shoulders for bikes on Beech Road between Route 236 and State Road.”

Photos



Figure 27. Beech Rd. at its intersection with State Rd. (Farmer's Corner), looking southeast. When combined, the priority projects in this report would add sidewalks, paved shoulders, and marked crosswalks at this intersection.



Figure 28. Mail truck delivering the mail on Beech Rd. in the afternoon. A paved shoulder on the mailbox side may allow the truck to pull further over to the side of the road to deliver mail, which may reduce the visual obstruction and awkward movements of other vehicles passing the truck.

6.4 Old Rd.

Old Rd. is an intuitive candidate for extending a sidewalk because it would connect to Eliot’s only sidewalk on State Rd. and serve community destinations such as Frost-Tufts Park and the William Fogg Library, which are less than a half-mile from each other, an 8- to 10-minute walk – unless you stop to chat with people along the way. Frost-Tufts Park is also just under a mile from the Elementary School.

With an AADT around 1,000, a posted speed limit of 25 mph, and a relatively flat profile, Old Rd. is seen being able to accommodate people bicycling in mixed traffic.

The presence of historically significant properties along this segment will present both design considerations and interpretive signage opportunities for the sidewalk. Close coordination should occur with the Eliot Historical Society. Properties include, but are not limited to, the Library itself (on the National Register), the neighboring Fogg Homestead, Pine Tree Farm and Seal House, Betsy Green House/Cottage, and Kennard home. The project would create a walking connection between two of the town’s historic corners – Kennard’s Corner and Cram’s Corner. In fact, at least one historic photo appears to show that Old Rd. used to have a dirt walking path separate from the road.



Figure 29. Old Rd. looking east from near Cram’s Corner (River/Fore Rd. intersection)

6.4.1 Old Rd.: William Fogg Library Driveway to Fore Rd./River Rd.

Project

Sidewalk

Description

Build a sidewalk on one side of the road

Implementation timeframe

Short to mid

Considerations

- A sidewalk exists on the north side of Old Rd. between State Rd. and the Library driveway.
- Based on utility pole locations, the presence of destinations (e.g. Frost-Tufts Park and the Library), and roadside conditions, a potentially favorable location for a sidewalk would be on the north side of the road from the Library driveway to Buzzell Ln., and on the south side of the road from Buzzell Ln. to Fore Rd./River Rd. (Cram's Corner). There appears to be sufficient stopping sight distance (200 ft.) for a marked crosswalk at Buzzell Ln. given the speed limit (25 mph).
- Along the Frost-Tufts Park frontage, pair the sidewalk with an aesthetically appropriate guardrail between the walkway and the travelway.
- Add a landing area for people to rest and for sledders and their parents to gather.
- Consider coordinating with a citizen-requested project to add pickleball courts at Frost-Tufts Park.
- A sidewalk along the Frost-Tufts Park frontage will likely require grading due to the slope down. There is already a stone terrace in front of the tennis courts and two stone footings/pedestals just off the road. These and other elements (e.g. guardrail, sledding waiting area) should be weaved into the design, and the design should carefully consider the context of the park, aesthetics, placemaking, and creating vantage points so people can stop to temporarily rest and have a chance to look out over the park landscape, or watch a tennis (or pickleball) game in passing.

Benefits

- Improves access to Frost-Tufts Park and William Fogg Library
- Connects to the existing sidewalk system on Old Rd. and State Rd.
- Creates a walking connection between two historic corners in town

Public comments

"I think [one of] the two priorities should be...-Old road from library to Frost Tufts park. There are lots of young mothers and people walking or biking this road. Amazing, there have been no incidents!"

"A sidewalk all the way to Frost Tufts Park would be beneficial to our neighbors across the street as they walk there pushing a stroller multiple times a week so their daughter can play at the playground"

"I'd like to submit a suggestion that the town consider sidewalks on Old Road...To be able to connect the park with sidewalks down the road to the library would allow for someone to walk from Frost Tufts all the

way to the elementary school downtown. I think since this is a route already used by a great number of our citizens it would only contribute to walk ability and a more vibrant community.”

“Some brave parents in town have been using the hill next to the tennis courts at Frost Tufts [for their kids to go sledding], but it is so dangerous to stand by the road at the top of the hill. If it were possible to make a place to stand while waiting for a turn to go down the hill it would be so great and so much safer. A little walkway above the tennis courts would be great.”

Photos



Figure 30. Old Rd. looking east from above the tennis courts at Frost-Tufts Park



Figure 31. Old Rd., looking west from above the tennis courts at Frost-Tufts Park

6.5 River Rd.

The scenic and winding River Rd. is one of the oldest roads in the state. The southern half is mostly flat and has some open views of the Piscataqua River. The northern half has some minor grades, including a slight incline up to where the road tees into State Rd. The road is a residential collector road that serves primarily residential trips but also some non-residential trips, such as for William Murray-Rowe Park or community events at Sandy Hill Farm. It is a scenic detour from State Rd. for people on bike and seems to be a popular running route. AADT is low, in the 400-500 range, but enough to prompt some safety concerns from residents about car traffic mixing with people walking in the road.

A similar sentiment was captured in the 2009 Comprehensive Plan (though it doesn't call out River Rd. specifically):

Eliot is endowed with some beautiful scenic narrow roadways. Unfortunately, many of these roadways are unsafe for the many people that enjoy walking and biking in the area because shoulders are narrow or nonexistent, and there are many horizontal and vertical curves built into the local roadway system, which impede driver sight distance.

Several design options are presented for both halves of the road. A feasibility study should evaluate the costs, benefits, opportunities, and challenges associated with each of these options, and it could be that the desired approach mixes more than one option.

6.5.1 Main St./Moses Gerrish Farmer Rd.: State Rd. to Kittery Town Line, and River Rd.: Full Length

Project

Conduct a “riverways” feasibility study (see also Section 6.2.1)

Description

Conduct a feasibility study to explore active transportation improvements on two corridors along the Piscataqua River: Main St./Moses Gerrish Farmer Rd. (Route 103) and River Rd. Each of these corridors, especially Main St., had substantial public input seeking improvements, but each has its challenges, such as roadside conditions along certain segments. For cost efficiency, one study is envisioned that would include both roads under the “riverways” theme. The study could explore projects of various scopes, improvement types, and implementation timelines – from quick-build, participatory demonstration projects to short- and mid-term permanent projects to aspirational “dream big” long-term projects.

While the study could look at the whole stretch of both roads, a three-part framework is suggested for thinking about River Rd. improvements:

- **Southern segment (Old Rd. to at least Laurel Ln., and potentially west to the river) – sidewalk zone:** study a future sidewalk to connect to the proposed Old Rd. sidewalk (Section 6.5.2)
- **Middle segment (Laurel Ln. or Newson Ln. to William Murray-Rowe Park) – yield roadway zone:** due to constraints along the side of the road, study a context-sensitive “yield roadway” involving traffic calming, narrowing of the roadway width, and removing the yellow centerline (Section 6.5.3)
- **Northern segment (from William Murray-Rowe Park to State Rd.) – paved shoulders zone:** study paved shoulders of approximately 1-3 ft. in width (Section 6.5.4)

The study could expand upon or modify the above framework.

Implementation timeline

Short

Considerations

- While this report makes specific recommendations for segments of Main St./Moses Gerrish Farmer Rd. and River Rd. (below), these could be “starting point” concepts that the study could explore further.
- The study could also include one or more Walk or Bike Audits, something the AIP Committee has looked into doing.

Benefits

- Assesses potential challenges and opportunities “on paper” before significant investment in detailed design and construction



Figure 32. Suggested feasibility study framework including different improvement type options for River Rd.

6.5.2 River Rd.: Old Rd./Fore Rd. to Laurel Ln.

Project

Sidewalk

Description

Build a sidewalk on one side of the road along this approximately 500 ft. stretch closest to Old Rd.

Implementation timeframe

Short to mid

Considerations

- River Rd. is a collector road, and, west of Laurel Ln., AADT in 2019 was 460. Based on guidance from the American Association of State Highway Transportation Officials (AASHTO), separated pedestrian infrastructure, like a sidewalk, is recommended.
- A sidewalk on this part of River Rd. could be combined with the Old Rd. sidewalk project or phased afterwards.
- The south side may be favorable for a sidewalk because it is the same side of the Old Rd. sidewalk at Cram's Corner and also on the side of Laurel Ln.

Benefits

- Improves access to Frost-Tufts Park and William Fogg Library
- Connects to the proposed sidewalk on Old Rd.

Public comments

"I'd like to suggest adding River Road as a priority for sidewalks to help increase public safety and minimize traffic disruption by keeping walkers off of the road. The ideal stretch would be between Laurel Ln and Governor Hill Road, but extending to Murray-Rowe Park would also be a great benefit as well...Finally, our second choice would be to consider sidewalks on River Road from Laurel Lane up through Old Road to Frost Tufts Park to allow for children to safely reach the park without being in the road."

Photos



Figure 33. Newly-resurfaced River Rd. (top left) beginning at Cram's Corner (photo: August 2021). A sidewalk is recommended for this first stretch of River Rd., at least to Laurel Ln.

6.5.3 River Rd.: Laurel Ln. to William Murray-Rowe Park

Project

Yield roadway

Description

Create a yield roadway, which is designed to accommodate the mixing of car, walking, and bicycling traffic at low volumes and speeds, with signage and context-appropriate traffic calming measures. (See Section 4.7 for more details.)

Implementation timeframe

Uncertain

Considerations

- River Rd. in some ways is a good fit for a yield roadway design and in some ways may not be such a good fit. The best fit for this design is a local roadway with less than 400 vpd and prevailing traffic speeds of 20 mph or less. River Rd. has about 400 to 500 vpd (on average), at least at its end points near Old Rd. and State Rd., and is a collector road. River Rd. also has a double yellow centerline, whereas yield roadway design purposely omits the centerline. However, the STAR Guide advises that roads with up to 2,000 vpd and 30 mph traffic speeds are potential fits as yield roadways. A well-thought-out yield roadway design could respond to River Rd.'s specific characteristics and focus traffic calming on areas of most concern to residents.
- How might a yield roadway work on River Rd.?
 - At a minimum, add signage that makes clear the characteristics of the roadway – e.g. slow speed, two-way traffic, pedestrians walking on roadway – to supplement the existing signage already installed (Figure 35). MaineDOT has a program to enhance bicycle/pedestrian signage, which could be considered to support this effort.
 - Seek priority traffic calming locations based on resident input and roadway conditions. Create traffic calming designs based on each location's context and with resident input.
 - Implement these designs as funding allows, considering temporary, trial versions for a short period of time.
- While this project is included conceptually, a feasibility study and coordination with abutting property owners is recommended before deciding on a design approach. Emergency responders should be consulted on any recommended traffic calming designs, and designs should be assigned estimated annual maintenance schedules and costs.
- The Town has installed removable speed bumps on other Town-maintained roads/streets, where there was expressed neighborhood demand for them. Where installed by the Town, speed bumps may need to be pulled up for the winter months to facilitate winter maintenance. Yield roadway design seeks to focus on other (visual/horizontal) traffic calming elements more than vertical elements such as speed bumps.

Benefits

- Improves active transportation access to Frost-Tufts Park and William Murray-Rowe Park
- Seeks to improve on the current situation of mixed traffic by adding traffic calming features to keep traffic at or below the 25 mph posted speed limit
- Would be a more favorable option for those who want improvements for active transportation but would be concerned about widening the road for paved shoulders and-or a sidewalk

Public comments

“[We] have lived on River Road since 1994. During that time we’ve seen a significant increase in automobile traffic, starting with the construction of the Little League field and more recently with the tourist activities at Sandy Hill Farm, which draw large numbers of visitors to our neighborhood. At the same time, pedestrian and bicycle traffic have increased as well. This is not a good mix. Over time, we have grown increasingly concerned about the volume of traffic and the speed at which motorists travel down our road. I am confident saying that this is a matter of great interest for many of our neighbors on River Road as well...We would like to suggest that the Town install traffic calming measures, specifically speed humps, on River Road and other residential roadways faced with similar circumstances. This low-cost, low-tech measure would go a long way towards improving safety by reducing speeds and increasing driver awareness.”

Yield roadway concept from the STAR Guide



Figure 34. This concept from the STAR Guide shows some potential features of a yield roadway. People walking, bicycling, and driving mix in the road. What the yield roadway design adds are features and characteristics that serve to keep car traffic at slower speeds. The actual travelway width is narrowed from the typical 20 ft., with no yellow centerline, and the roadside can have gravel or dirt shoulders that serve as parking lanes, places to pull aside to yield to an oncoming car, or islands that can have plants, stormwater management, signs, or other features.



Figure 35. Example of existing pedestrian/slow speed signage on River Rd.



Figure 36. Pine needles effectively narrowing the roadway on River Rd., which already has a low posted speed limit (15 mph). The pines are offering a glimpse of one of the traffic calming elements (roadside narrowing) of a yield roadway concept. Another would be the removal of the double yellow centerline.

6.5.4 River Rd.: Murray-Rowe Park to State Rd.

Project

Paved shoulders

Description

Install 1-3 ft. paved shoulders on the entire, approximately 3-mile stretch of River Rd.

Implementation timeline

Long

Considerations

- While this project is included conceptually, a feasibility study and coordination with abutting property owners is recommended before deciding on a design approach.
- Based on MaineDOT guidance for this context, a shoulder width of 1-3 ft. may be appropriate.

Benefits

- Provides space for people to bike outside of the travel lane
- Provides a more level, tractable space (compared to a gravel or grass shoulder) for people to walk along the road, in the absence of a sidewalk
- Improves an on-road portion of the Eastern Trail
- May reduce the need for people driving to cross the centerline to pass people on foot or on bike

Public input

“[We] would love to see a wider shoulder...wherever you can on River Road.”

6.6 Goodwin Rd.

As a state-maintained, numbered route (Route 101), Goodwin Rd. is a major collector road roughly parallel to the southeast-to-northwest direction of Route 236 and State Rd. Depending on location, AADT varies from about 2,000 to 6,000. Goodwin Rd. primarily serves residences, farms, conservation areas, and a small number of destinations.

The low density and limited number of destinations along Goodwin Rd. limits demand for utilitarian walking and cycling trips. However, its scenic rural character makes it attractive as a recreational route. At the same time, the existing conditions of the roadway, including the lack of a paved shoulder, were cited as barriers or discouraging factors for people who would otherwise use these modes of transportation.

Another important factor is the recent crash history along the corridor. For the three-year period from 2018-2020, the intersection of Goodwin Rd., Beech Ridge Rd., and Forest Ave. is designated as a high-crash intersection on MaineDOT's Public Crash Query Tool, with a total of 8 reported crashes, half of which were injury crashes. During the same period, Goodwin Rd. segments between Depot Rd. and Brixham Rd., and between Brixham Rd. and Rollingwood Rd., are designated as high-crash segments. It is outside the scope of this report to make a general safety evaluation of the corridor, and reported crash data alone do not tell the whole story of crash risk in any one corridor. However, should such an evaluation be conducted, it is suggested that the evaluation take into consideration walking and bicycling safety and the potential safety benefits of paved shoulders, which are discussed further in Section 4.

6.6.1 Goodwin Rd.: Route 236 to Kittery Town Line

Project

Paved shoulders

Description

Install 3-4 ft. paved shoulders, where practicable, along the approximately 5-mile stretch of Goodwin Rd. (Route 101) in Eliot.

Implementation timeline

Mid

Considerations

- State-maintained road. Coordinate with MaineDOT.
- Based on MaineDOT guidance for this context, a shoulder width of 3-4 ft. may be appropriate.
- If shoulder development needs to be phased over time, consideration for an earlier phase would be parts of the road where there are blind curves, limited sight distance, uphill grades, and-or other roadway features such that paved shoulders may lower crash risk. Bicycle-pedestrian count data (if available) and crash data should also inform this phasing.
- Based on 5-year (2016-20) reported crashes on MaineDOT's Public Crash Query Tool, the Goodwin Rd. segments that appear to have higher crash densities include Beech Rd. to Beech Ridge Rd., inclusive of each intersection, and Frost Hill Rd. to Depot Rd. If conducted, a corridor safety study could take a more comprehensive look at crash numbers, severity, and types; existing conditions; and Goodwin Rd.'s context, and make recommendations for proven safety countermeasures. Such a safety study should consider all modes of travel and evaluate paved shoulders as a safety measure.
- Where practicable and warranted by the roadside topography, consider pairing paved shoulder improvements with an aesthetically appropriate guardrail.
- Pair paved shoulder improvements with bicycle, pedestrian, and safety signage additions/upgrades. MaineDOT has a program to enhance bicycle/pedestrian signage, which could be considered to support this effort.

Benefits

- Provides space for people to bike outside of the travel lane
- Provides a more level, tractable space (compared to a gravel or grass shoulder) for people to walk along the road, in the absence of a sidewalk
- May reduce the need for people driving to cross the centerline to pass people on foot or on bike

Public input

"I don't know how feasible it is, since I think Goodwin Rd is a state road, but it would be amazing to have at least a wider shoulder. When I run from my house, I try to get off of Goodwin Rd as soon as possible because I find myself frequently teetering on the edge of the ditches. When I ride my bike, I don't have

the luxury of going into the dirt. I know that a wider shoulder won't address the speed or distracted drivers, but it would at least give walkers, runners and riders a little more space to deal with.”

“...I would like to ask for consideration of widening the road on Goodwin Rd/Rt 101. I drive that road daily to take my kids to school...and find it to be the most dangerous in town. I pass people and dogs walking on a daily basis and bike riders almost as often. Given the lack of shoulder and the curvy nature of that road, it feels incredibly dangerous to me. I also see drivers cross the yellow line on that road when negotiating curves more often than I have ever seen elsewhere in my life and it truly scares me for when my kids start to drive. I actually had reservations about buying a home in that part of town because I don't want my kids as new drivers on that road every day where it's narrow and people cross the line. I hope you will truly consider this sincere input.”

“I live at [###] Goodwin Rd. We are active cyclists and love all the great roads that Eliot has to offer. I must say though that our road has seen a large increase of traffic and people seem to be driving faster on it all the time. Across the street from Ridgewood Rd there is an S curve that is narrow and blind. It would be awesome if the bank could be cut back a bit in that area to help the visibility and also a little wider shoulder. If you're a runner or cyclist going up the hill your speed is much reduced and people have to slow way down and don't always see you until they are right on top of you. We also see a lot of foot traffic of people walking between Ridgewood and Rollingwood as I think a lot of people pass our house to go and walk/ride bikes with their families in the quieter Rollingwood loop. Also the corner is dangerous and we've had people go off the road and end up in our woods and even just last week someone cut the corner and hit a pickup and trailer as they had no shoulder to move over to avoid the car...I realize 101 is a 'state road' but perhaps this could be brought up as an improvement anyway?”

“101/Goodwin is deadly for walkers and bikers (and drivers who have to swerve on a windy road to give them space). It would be awesome if this could be part of your plan.”

“As a walker on Goodwin Road I wish we at minimum had a shoulder. When the cars are over the speed limit and your only option is a 4-5 foot ditch to step into it gets pretty scary!...I don't dare walk my dog...I walk between Depot and Beech and know three other avid walkers as well as a few who walk Goodwin to Rollingwood (since it's a safer road to walk)...Any ability to widen the road would be helpful.”



Figure 37. Map showing Strava user data along Goodwin Rd. While Strava data is limited to those using the app (likely mostly recreational bicycling in this map), it does suggest what roads see greater or lesser bicycling use.

6.7 Route 236

This report does not offer comprehensive recommendations for Route 236. As it is, Route 236 is seldom used for walking and bicycling, but it is still used by some. A shoulder of around 8 ft. exists for much of Route 236 today. Route 236 in Kittery, Eliot, and South Berwick is slated to receive a pavement overlay in 2022 and 2023 from MaineDOT. At this time, it is expected that the overlay will allow for the striping of a center turn lane where there are driveway cuts, as recommended in the Draft Route 236 Corridor Study, which is being finalized at the time of this report. This will create a safety benefit with left-turning vehicles no longer needing to queue in the through lane as well as spatial separation of opposing paths of travel; however, it will also reduce the shoulders to about 4 to 5 ft. Even as the other routes discussed above are prioritized, Route 236 itself should not be forgotten.

6.7.1 Route 236: Dover Rd. to Heron Cove Rd.

Project

Sidepath

Description

As recommended in the Draft Route 236 Corridor Study, build an 8-10 ft. sidepath from Heron Cove Rd. to Dover Rd. and on Dover Rd. from Route 236 to Oldfields Rd., a total length of about 1,500 ft. The shared use sidepath provides a dedicated walking facility as well as an off-road bicycling facility, which is a lower-stress option than riding in the lanes of Route 236 and Dover Rd. and having to navigate turns in higher-speed mixed traffic.

Implementation timeline

Mid

Considerations

- State-maintained roads. Coordinate with MaineDOT.
- The Draft Route 236 Corridor Study found this intersection to have the highest number of reported crashes, by far, of all Route 236 intersections within the study area for the 2017-19 three-year period. The intersection had 15 crashes, with the next highest being Depot Rd. (5 crashes). As documented in Section 3.2, this intersection also had a bicycle injury crash in 2019.
- Build the project along with other intersection traffic and safety improvements recommended in the study.
- A preferred location is on the west side of Route 236, in front of the former restaurant, which would be paired with driveway access management as recommended in the Route 236 Corridor Study. There appears to be a deteriorated former sidewalk in front of the restaurant that could be restored and widened into the sidepath.
- A sidepath on the south side of Dover Rd. may be more favorable as it preempts the need to cross Route 236 at a skewed intersection with heavy turning movements. A crossing of Dover Rd. at Oldfields Rd. could be enhanced with a high-visibility marked crosswalk, signage, and an RRFB, along with Eastern Trail and East Coast Greenway guide signs.
- A marked crosswalk across Heron Cove Rd. at Route 236 may be appropriate to orient people walking and bicycling onto the sidepath from the eastbound side of Heron Cove Rd.
- Future phases could extend the sidepath south to Worster Rd., State Rd., or further south.

Benefits

- Converts an existing on-road segment of the Eastern Trail and East Coast Greenway into an off-road trail, addressing a pinch point between two lower-speed, lower-traffic roads. Currently, the Eastern Trail ride guide notes the on-road portion with a “caution” marker.
- Creates a new path for people to walk, physically separated from Route 236
- Serves as a bicycling gateway into Eliot from South Berwick

Photos



Figure 38. Route 236 looking south toward Heron Cove Rd. The project proposes to build a sidepath along this stretch, restoring and widening the deteriorated sidewalk and creating a new link in the Eastern Trail and East Coast Greenway, as part of a larger intersection improvement project recommended in the Route 236 Corridor Study.



Figure 39. Route 236 looking toward the Goodwin Rd./Dover Rd. (Route 101) intersection



Figure 40. Dover Rd. looking toward the Route 236 intersection

7 Other strategies

7.1 Bikesharing and e-bikesharing

The Town of Eliot should consider joining its regional partners in exploring the feasibility of a bikesharing system. Bikesharing systems have stations (docks) with public bikes available for short-term rental using an automated payment kiosk. A bike can be unlocked from one station and returned to any station in the system. Recently, some bikesharing systems have started to incorporate e-bikes.

Establishing a bikesharing system in Kittery is a recommended strategy in the Town of Kittery + Portsmouth Naval Shipyard (PNSY) Joint Land Use Study (JLUS), which among many other objectives, addresses traffic congestion related to PNSY commuting. The JLUS notes:

Improving accessibility to bikes for people who do not own one, and providing a program that has built-in flexibility for how they are used, may encourage less experienced riders to participate in riding to work. This would increase bike usage by workers who live within [bikeable] distance, who utilize a Park and Ride within [bikeable] distance, and particularly for less-experienced riders. The benefits of this strategy are seasonally-dependent, however.

The JLUS notes that Portsmouth had a three-year contract with bikesharing provider Zagster starting in 2017. At the time of this report, Portsmouth's bikesharing program has been suspended (as have some other programs during the pandemic), and in colder climates some bikesharing systems are routinely removed for the winter. The most-used Portsmouth station was near the Memorial Bridge, suggesting some favorability for expansion to the Kittery Foreside, PNSY, and beyond.



Figure 41. Zagster bikeshare station in Salem, MA (May 2018)

An example of bikeshare collaboration in a New England region with smaller communities is Valley Bike Share in the Pioneer Valley in Central Massachusetts. This system serves five communities and has both regular bikes and pedal-assist e-bikes.

Two key considerations/challenges for a regional bikeshare system extending into Eliot are quality of infrastructure and station spacing. As this report makes clear, Eliot's roads lack dedicated space for bicycling. People will generally only rent a bike if they feel safe and comfortable riding it to where they need to go. By implementing the projects recommended in this report, bicycling will become a more comfortable and convenient option. With regard to station spacing, the National Association of City Transportation Officials (NACTO) recommends a walkable distance (3-5 min. walk) between stations. Therefore, there should not be a great distance between the Kittery stations and the inaugural Eliot stations, though with e-bikes the distance could potentially be somewhat longer.

Several years ago, some companies began offering dockless systems, where a bike could be placed anywhere and a mobile app could be used by system subscribers to locate a bike and unlock a wheel lock. Many of these same companies also began offering dockless e-scooters in certain cities. Issues with loss or damage to the bikes, competition from e-scooters themselves, and then the COVID pandemic have created challenges to the success of dockless bikesharing systems, suggesting an uncertain future.

7.2 Non-infrastructure strategies

The following non-infrastructure strategies should be considered by the Town to encourage active modes of travel for people of all ages and abilities.

- Keep vegetation trimmed on the sides of the road
- Continue speed enforcement efforts
- Develop a traffic calming request program
- Provide educational materials in public places encouraging safe driving
- Hold cycling instruction classes (e.g. League of American Bicyclists' Cycling Skills courses) to encourage safe bicycling
- Install bicycle parking at key public destinations and encourage bicycle parking at private businesses
- Continue to hold roadside trash pickup days (currently organized by the Conservation Commission)
- Organize Walk-Bike to School Days

8 Implementation

8.1 Recommended prioritization of projects

Implementation timeframe	Corridor	From	To	Project
Immediate	Beech	State	Route 236	Sidewalk and paved shoulder
Immediate	State	Main/MG Farmer	Bolt Hill	Sidewalk and paved shoulders
Short	Main	Bolt Hill	Pleasant	Sidewalk and crossing improvements
Short	State	Old	Main/MG Farmer	Crosswalk improvements
Short	Main/MG Farmer	State	Kittery Town Line	Feasibility study (paired with River Rd.)
Short	River	Fore/Old	State	Feasibility study (paired with Main/MG Farmer)
Short-mid	Old	State	Fore/River	Sidewalk
Short-mid	River	Laurel	Fore/Old	Sidewalk
Short-mid	State	Fore	Old	Paved shoulders
Short-mid	State	Grange Hall	Old	Sidewalk
Mid	Goodwin	Route 236	Kittery Town Line	Paved shoulders
Mid	State	River	Fore	Paved shoulders
Mid	Route 236/Dover	Heron Cove	Oldfields	Sidewalk
Mid	Main/MG Farmer	State	Mast Cove	Sidewalk
Mid	Main	Mast Cove	Greenwood	Sidewalk and paved shoulders
Mid-long	Main	Greenwood	Bolt Hill	Sidewalk and paved shoulders
Mid-long	State	Route 236		Intersection active transportation improvements
Long	River	State	Murray-Rowe Park	Paved shoulders
Long	State	Route 236	Worster	Paved shoulders
Long	State	Worster	River	Paved shoulders
Uncertain	River	Murray-Rowe Park	Laurel	Yield roadway
Uncertain	State	Jennie	Jennie	Sidewalk

Immediate – begin to seek funding to commence design work as soon as this report is approved/accepted/endorsed by the Select Board

8.2 Key partners and funding sources

8.2.1 Key/potential funding and technical assistance partners

- Southern Maine Planning and Development Commission (SMPDC) / Kittery Area Comprehensive Transportation Study (KACTS) – regional agency and Metropolitan Planning Organization (MPO) responsible for funding many larger transportation projects in the region. Eliot, Kittery, York, South Berwick, and Berwick are the municipal members of KACTS.
- MaineDOT – maintains many roads on which improvements are recommended
- Private foundations or nonprofits, including some that have worked with Eliot in the past (e.g. the AIP Committee has worked with AARP)

8.2.2 Potential funding sources

There are many potential funding sources to consider for the prioritized projects. The below list is only a sampling and is not necessarily exhaustive. With the federal passage of the Infrastructure Investment and Jobs Act (IIJA) and voters' approval of the \$100 million state transportation bond, both in November 2021, there is an even bigger window of opportunity to seek external grant funding to support the majority of the cost of the projects, though a local match is typically required.

Municipal Partnership Initiative (MPI)

According to MaineDOT's funding program website, the MPI is:

a creative method to develop, fund, and build projects of municipal interest on the state infrastructure system with DOT as a partner. It is MaineDOT's intention that this program remain simple, flexible, and fast moving. It will respond to municipal interests, leverage economic opportunities, and improve safety whenever possible while ensuring the public gets good value for their tax dollars.

The MPI program has a continuous application process, and eligible projects "will typically be selected during the first quarter of the year or until funds are exhausted," according to DOT's program guide. MPI requests, if granted, can lead to a grant cooperative agreement in as short a time period as two months. Challenges include:

- The state's share is capped at \$625,000 and 50% of project costs
- Municipalities are responsible for procurement, construction, right-of-way acquisition (if needed), and public involvement
- There is only about \$7 million annually, statewide, for the program, and it is in great demand
- Bicycle and pedestrian components alone may not be able to be funded by the MPI, but for corridors already slated for core roadwork, such as resurfacing, there may be an opportunity to seek MPI support to accomplish both the core roadwork and ancillary bicycle and pedestrian improvements

Planning Partnership Initiative (PPI)

According to MaineDOT, the PPI

is intended to address time-sensitive locally-initiated planning and feasibility studies that occur outside MaineDOT's normal annual Work Plan cycle. The approach is to study, evaluate, plan and scope transportation projects on or adjacent to the state transportation system with MaineDOT as a

partner...the PPI program is intended to be simple, flexible, and fast-moving for new economic development and other high-priority proposals.

The application process is also continuous and administered on a first-come/first-served basis. So, the PPI has several similar characteristics as the MPI in terms of how the program operates, but the key difference is that the PPI is only for planning and not for design or construction. The PPI could therefore be a good fit for some of the projects above where the first step is a feasibility study.

Because Eliot is in the KACTS MPO, requests for PPI funding should go through KACTS.

Surface Transportation Block Grant (STBG) Program, administered by KACTS

The federal Surface Transportation Block Grant (STBG) program (formerly called the Surface Transportation Program, or STP) provides flexible funding for transportation capital projects. Congress authorizes and appropriates the funding and the FHWA apportions the funding to the states. In metropolitan areas, the funding is administered by MPOs such as KACTS. The IIJA, passed by Congress on November 5, 2021, reauthorizes the STBG through federal fiscal year (FFY) 2026. Generally, this program funds up to 80% of project costs, with project sponsors needing to come up with at least a 20% non-federal match. This matching funding can come from state funding programs, municipal budgets, private grants or donations, developer contributions, the value of certain in-kind contributions, or other sources.

The most recent allocation of STBG funds by KACTS took place in Summer 2021, when about \$636,000 of federal funding was given to the Town of Berwick for downtown intersection improvements. This was matched by about \$80,000 of state funding (10%) with the remaining 10% coming from the Town of Berwick. The allocation is for calendar year 2024. Because this funding is programmed a few years out and working with federal funding tends to have more rigorous administrative requirements, STBG funding is likely a better fit for larger projects to be implemented over the course of a few years rather than small, quick-build projects.

MaineDOT Bicycle and Pedestrian Program

According to the program web page, 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.” Program goals address safety, public health, economic development, and local community livability and vitality. This program manages a portion of federal STBG funding specifically set aside for bicycle and pedestrian projects, called the Transportation Alternatives (TA) set-aside (formerly the Transportation Alternatives Program, or TAP). There used to be a separate federal SRTS program, but that was consolidated under the TAP, now the TA set-aside.

As with the STBG program, this federal funding is programmed a few years out and requires a 20% non-federal match. The maximum allocation is \$400,000. Therefore, it is likely a better fit for mid-sized or larger projects to be implemented over the course of a few years rather than small, quick-build projects.

Imagine People Here temporary demonstration projects

This program is run by the Bicycle Coalition of Maine with support from AARP Maine, LL Bean, and MaineDOT. It supports temporary demonstration projects that seek to improve conditions for bicycling or walking. These are small, low-cost projects that involve community participation, such as painting a

decorative crosswalk (see Section 4.2 above). Data (e.g. traffic speeds, perception surveys) is collected before and after the installation to gauge its effectiveness.

MaineDOT bicycle and pedestrian signage assistance

If a community wants to upgrade active transportation signage along a corridor (such as “Share the Road” signs), MaineDOT may be able to help. A request would need to be made to MaineDOT’s Bicycle and Pedestrian Program Coordinator and Active Transportation Planner. If the request is accepted, MaineDOT would supply the signage, although the municipality would be responsible for installing them.

MaineDOT safety funding

MaineDOT’s Bureau of Highway Safety may play a role in safety upgrades for people walking and bicycling, depending on the project and context. The state’s Strategic Highway Safety Plan (SHSP) was adopted in 2017, with pedestrians and bicyclists as a focus area. The SHSP notes that there were 126 people walking and 17 people bicycling who died in traffic crashes over the previous 10-year period, with some years seeing a year-over-year doubling of pedestrian fatalities. MaineDOT maintains a pedestrian safety signage and visible crossing program. As discussed elsewhere in this report, projects contemplated primarily for bicycle and pedestrian safety can also be beneficial for all modes of transportation.

Municipal funding

Although the recommended strategy is to seek external grant funding to pay for most of the cost of these projects, as noted above, external grants typically need a local match. The Town of Eliot should be ready to budget for a local match to enable projects to move forward. Route 236 Tax Increment Financing (TIF) funds may be considered for certain projects related to or supporting the TIF District. Also, private grants or donations could serve as some of the match.

Other potential funding sources

- American Rescue Plan Act (ARPA) funding
- Private grants, e.g. AARP
- Community donations/crowdfunding

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