


BICYCLE & PEDESTRIAN PLAN FOR GORHAM VILLAGE



FINAL REPORT
October 2017

 MILONE & MACBROOM



BICYCLE & PEDESTRIAN PLAN FOR GORHAM VILLAGE

FINAL REPORT 2017

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EXECUTIVE SUMMARY

Milone & MacBroom, Inc. (MMI) has undertaken this study of bicycle and pedestrian needs for the Town of Gorham, Maine, with the goal to develop recommendations and propose improvements that create a safer and more desirable bicycle and pedestrian environment through a context-sensitive multi-modal approach.

BACKGROUND

Crucial to the creation of this report was the cultivation of a concrete understanding of the Town's past and present, and its goals for the future. This was achieved through the review of existing planning documents and goals; high level coordination and collaboration with a project steering committee; and an innovative public outreach process.

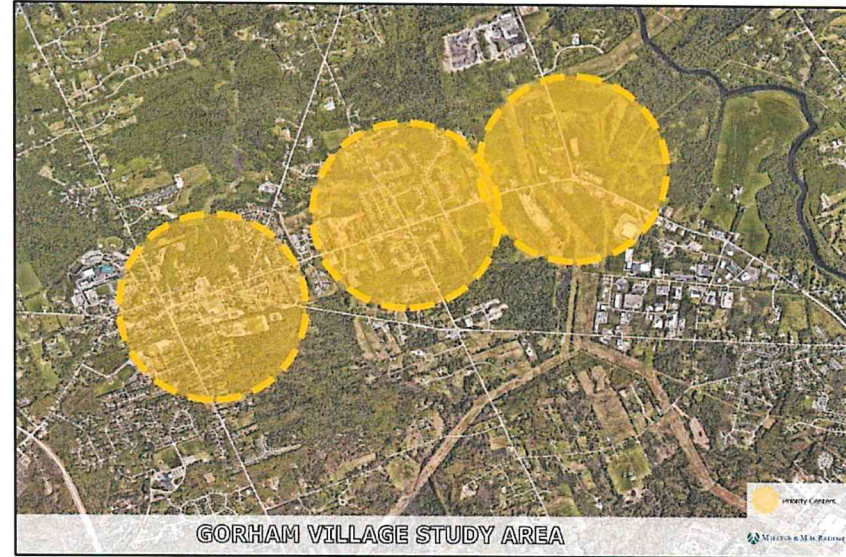


Figure 0.1 – Original Study Area as presented in Project SOW

A deep understanding of the Town of Gorham's vision for its future, and how it came to necessitate this new bicycle and pedestrian plan, were gained through a thorough review of all relevant previous planning documents. The documents reviewed included three Town-centric documents and two regional sources. Summarized information from the relevant plan review efforts can be found within Section 2.1.

Also critical to ensuring that all recommendations made were relevant to the Town's needs and its own identity was the coordination and collaboration with a project steering committee. Study Committee partner organizations included the Town of Gorham, the Portland Area Comprehensive Transportation System (PACTS), the Maine Department of Transportation (MaineDOT), and the Greater Portland Council of Government (GPCOG) and is discussed within Section 2.2.

The public outreach process for this project collected points of view, opinions, and ideas from Gorham residents and stakeholders that were pertinent to the Town's bicycle and pedestrian needs. MMI employed a three-tier public outreach approach which included key stakeholder meetings, an online survey, and in-person Audit and Workshop events focused on both walking and bicycling. The results of this innovative and in-depth outreach process can be found summarized within Section 2.3.

EXISTING CONDITIONS

Following the background portion of this study, the separate relevant components of the Gorham Village Area's built environment and transportation system were analyzed based on their existing conditions. First, pedestrian conditions were examined through physical audits of relevant infrastructure along key corridors in the Gorham Village Area. An overview of this process, as well as a summary of findings for the key corridors and segments can be found within Section 3.1.

Next, an in-depth assessment of the existing conditions for bicyclists was conducted. Riding conditions in Gorham were assessed for a typical, "Interested but Concerned" rider in terms of objectively measureable roadway factors such as lane width and AADT, and complemented by expert judgment. A description of the bicycle audit process and a summary of the key findings can be found within Section 3.2.

Although this is a bicycle and pedestrian study, it was still important to assess the existing vehicular traffic conditions in order to understand what implications present vehicular conditions may be invoking upon bicyclists and pedestrians in the area. For more information on the data collection and analysis process, as well as the key findings, see Section 3.3.

RECOMMENDATIONS

Based on the findings from Sections 1 and 2 of this report, context-sensitive recommendations were developed to improve walking, bicycling and land use in the Gorham Village Area. The most critical recommendations concerning pedestrian needs in the Gorham Village Area include the following:

Key Recommendations (Sections 4.1 & 4.2)

- * Gateway treatments are recommended for each of the Town of Gorham's main roadway approaches. This signage will serve as a reminder to drivers that they are now entering a Town and that they should expect to see pedestrians and bicyclists.
- * Along Main Street / Route 25 from New Portland Road to School Street / South Street it is recommended that the width of the center turn lane be 11 feet and that shared lane markings (a/k/a sharrows) and MaineDOT signage (The "3-feet min. to pass" signs shown in Figure 4.4) be implemented. Access management should also be implemented here.
- * A significant geometric improvement is recommended for the intersection of New Portland Road and Main Street / Route 25. This includes reducing the intersection footprint and introducing smaller radii to reduce speeds and shorten pedestrian crossing distances. The signal would be upgraded to add a new pedestrian phase and signal equipment upgrades for full ADA compliance. A new high visibility crosswalk would be installed along with improved sidewalk connections.
- * The intersection of Chick Drive / Meadowbrook Drive and Main Street / Route 25 should be redesigned to include the introduction of high visibility crosswalks across Route 25 on the east side of the intersection and across Chick Lane as well as a small extension of the curbing to shorten pedestrian crossing distances. A Rectangular Rapid Flashing Beacon (RRFB) should be implemented to boost the visibility and safety for pedestrians crossing here.
- * At the Lincoln Street at Robie Street intersection, which is also home to the entrance to Village Elementary School, it is recommended that high visibility crosswalks surrounding a textured intersection be added as well as a curb extensions on the southwest and northwest corners.
- * Overall, traffic calming is a necessary throughout the Village Area as high vehicular volumes and speeds negatively affect the conditions for walkers and bicyclists.
- * Pedestrian- and bicyclist-level wayfinding signage is recommended through the Village Area to help both encourage more people to walk and bike, as well as to improve the ease of navigation for existing and future walkers and bicyclists.
- * A series of sidewalk improvements are recommended throughout the Town. These recommendations include the filling of sidewalk network gaps, and the maintenance of existing sidewalks. These recommendations are reflected in the sidewalk prioritization table, included in the back of the report.

SECTION 1 – INTRODUCTION

Gorham Maine is one of the fastest growing towns in the state. Once a farming community, this scenic and bustling town is only ten miles from the center of the Portland Peninsula. Its town center, referred to locally as Gorham Village, has a unique blend of users, destinations, and roadway types; functioning as both a destination and a regional pass-through (see Figures 1.1 and 1.3).

Regionally, the Village is located at the crossroads of several important transportation corridors supporting the movement of goods and services as well as commuters to and from the greater Portland area. The town is also situated between the Maine Coastal areas to its east and the lakes and ski areas to its north and south, which brings recreational traffic year-round. For these reasons, the primary streets within the village (Main Street/Route 25, Route 114/School/South Street, Route 202, New Portland Road) experience high volumes of both local and regional traffic, including a high percentage of large trucks.

But Gorham Village is much more than a vehicle pass-through. First and foremost, it is a place central to its community: a vibrant area with local businesses, retail shops, and restaurants, as well as civic institutions like the Gorham Schools (Village Elementary, Narragansett School, High School, and Middle School), the Gorham Public Library, the Gorham Town Hall, and the University of Southern Maine's Gorham Campus. The village is also home to numerous neighborhoods, from which many children walk or bicycle to school and sporting activities.

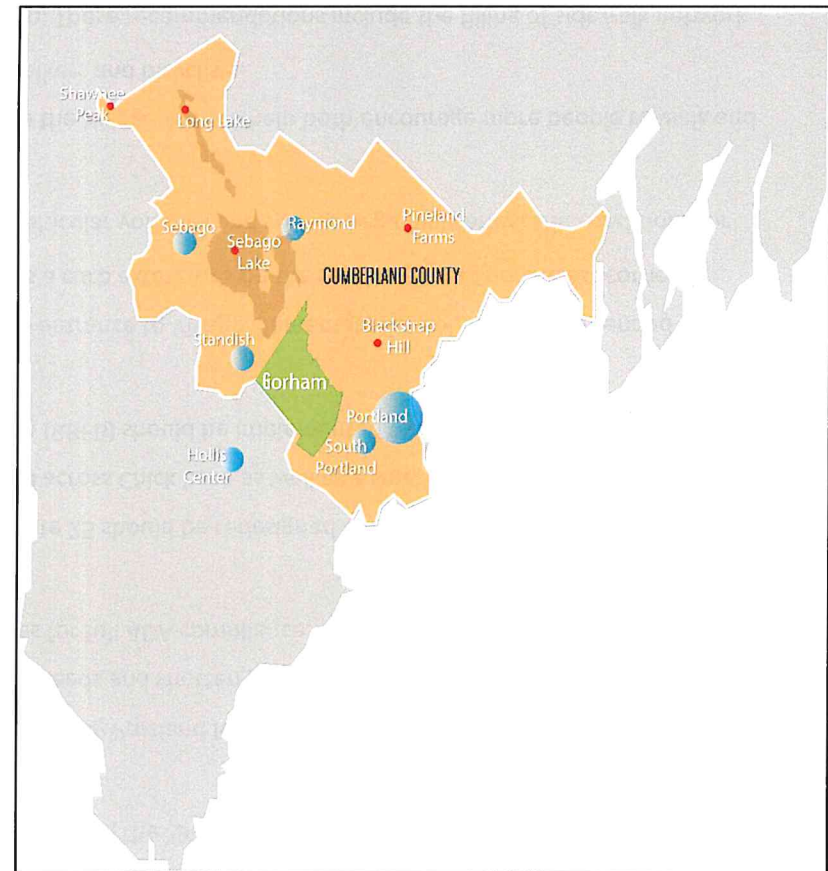


Figure 1.1 - Gorham Village Area Context Map.

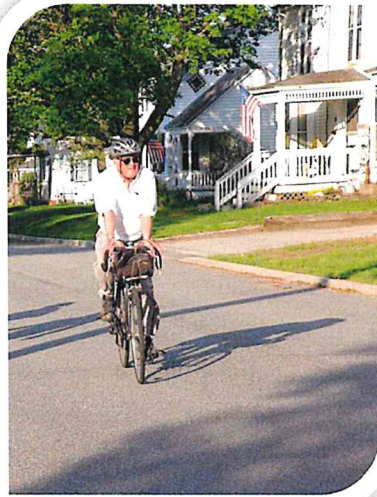


Figure 1.2 Bicyclist on Lincoln Street.

those populations who cannot drive, and improves the experiential qualities of the village. This study is intended to assess the village's existing pedestrian and bicycle infrastructure, document deficiencies and needs, and develop a multi-modal transportation plan with prioritized project recommendations that address the unique needs of the Town of Gorham.

Some areas of the village reflect many of the qualities of a Traditional New England center while others, specifically along Main Street, have given way to an environment that is decidedly auto-centric. Because of their regional importance, the primary routes through the central village area have evolved to meet the functional requirements for efficient traffic mobility. This accommodation, however, has often supplanted opportunities for character and quality-of-life based enhancements particularly within the limited right of way. The result is a built environment that can be uncomfortable and unsafe for walking and bicycling. With the recent construction of the Gorham By-Pass and the subsequent change in traffic flow in the village, the town has an opportunity to recalibrate its infrastructure to invite more bicycle and pedestrian activity.

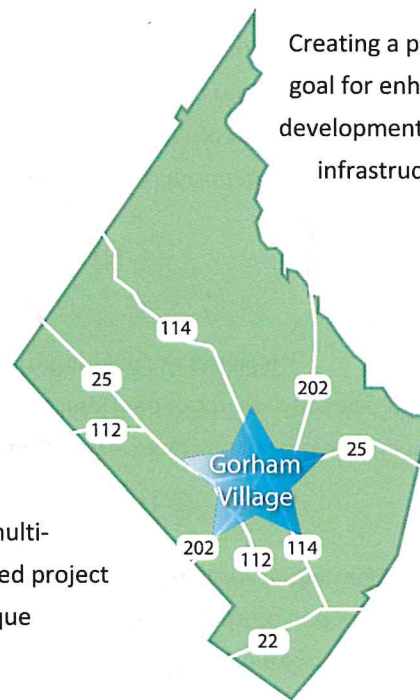


Figure 1.3 Context map showing Gorham, the Village, and major transportation routes.

Creating a pedestrian and bicycle friendly village is an important town-supported goal for enhancing livability and supporting a vibrant economic center. The development of roadways with appropriate and safe bicycle and pedestrian infrastructure encourages healthy lifestyles, creates a network of connectivity for



Figure 1.4 Pedestrians at the corner of Main Street (Route 25) and School Street (Route 114).

SECTION 2: BACKGROUND

In recent years, the town of Gorham - mirroring a country-wide trend - has recognized the value of making its village and neighborhoods pedestrian and bicycle friendly. As part of this study, the planning team sought to understand the recommendations of relevant past plans and studies and to ascertain the needs of the community related to walkability and bicycling in the village.

2.1 RELEVANT PLANS & STUDIES

This section of the report references the groundwork laid within relevant planning documents and previous studies, the recommendations of which have informed this plan. The most relevant and pertinent points, goals, or recommendations of each study to this plan are detailed.

2016 GORHAM COMPREHENSIVE PLAN

Site Specific Goals:

The 2016 Gorham Comprehensive Plan (see Figure 2.1) included several site-specific goals for Main Street and the Village Area. The plan outlined improvements to the Main Street and New Portland Road intersection to increase pedestrian safety. It recommended reducing crossing distances and adding a crosswalk on Main Street on west side of intersection. The plan also supported access management along Main Street: limiting exiting traffic to side streets, where possible. To accommodate alternative modes of traffic, the plan recommended that Main Street be redesigned with Complete Street principals, including public transit stops, wider sidewalks, narrower travel and turn lanes, on-street parking, and bicycle lanes where possible. It also recommended that investments continue to be made in the Village Area to make it more pedestrian-friendly and reinforce the connection to the adjacent residential neighborhoods.

Nonautomotive transportation goals:

Multi-Modal Transportation goals sought to expand the range of nonautomotive transportation alternatives both locally and within the regional system. The plan called for improving on-street bicycle infrastructure and enhancing facilities for bicycle parking at public schools, recreational areas, and other activity centers. The plan also cited pedestrian-specific goals, such as maintaining and improving existing sidewalks and expanding the

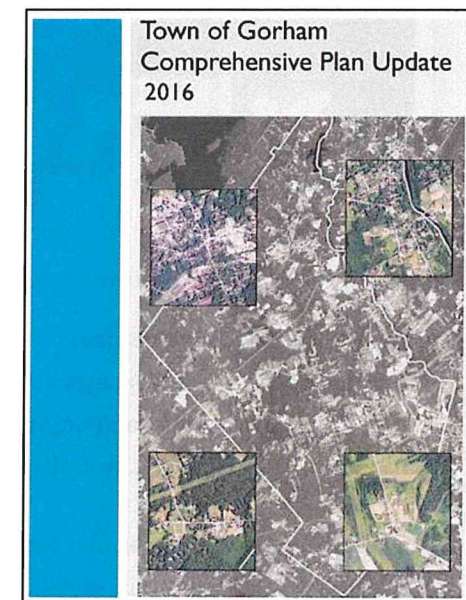


Figure 2.1 Cover of the Town of Gorham Comprehensive Plan Update 2016.

sidewalk network within the Village Area. Additionally, the plan advocated for clearly marked crosswalks and improving intersections to reduce crossing distances and/or adding pedestrian islands in wide streets. The plan also recommended the addition of amenities such as benches and pedestrian lighting, to make these centers more attractive as gathering places.

Finally, the 2016 Gorham Comprehensive Plan encouraged connections to existing/planned trails and open space to enhance recreational and transportation opportunities. Among these, the plan specifically advocated that the town work with the City of Westbrook and Portland Trails on the Cross-Town Trail and connections to it.

Land Use Goals:

The Comprehensive Plan also recommended that land use regulations be revised to require large commercial, industrial, multi-family residential or mixed-use developments to incorporate provisions for bicycles into the development plan as appropriate.

2015 MAIN STREET MASTER PLAN UPDATE - GORHAM VILLAGE

Site Specific Goals:

The Main Street Master Plan Update (see Figure 2.2) included complete streets recommendations with components mirroring those of the Comprehensive Plan: improved bicycle and pedestrian accommodations and adjustments in the travel-way; improved streetscape and amenities; and access management along Main Street. The plan called for a mid-block crosswalk at The Village Mall with enhanced safety features like a pedestrian activated signal (Rectangular Rapid Flashing Beacon). The plan also recommended the reconfiguration of the Main Street and New Portland Road intersection and the State Street and Narragansett Street intersection to increase safety for all users.

Nonautomotive Transportation Goals:

The Main Street Master Plan recommended expanding non-automotive transportation opportunities. The plan prioritized new sidewalk construction to fill in the "missing links" and improvements to bicycle infrastructure and signage. Recommendations included the installation of "Share the Road" signs in the

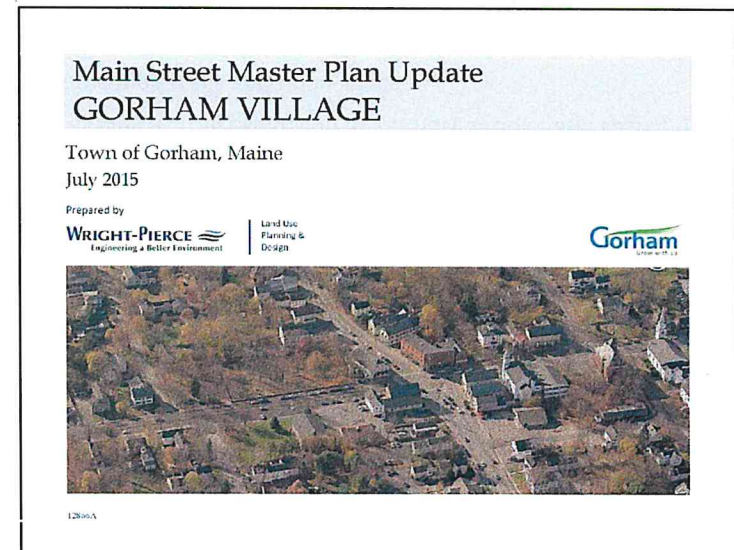


Figure 2.2 Cover of the Town of Gorham's Main Street Master Plan Update – Gorham Village.

village and in sections (Route 114, Route 25) where shoulders narrow or on-street parking occurs, as well as the expansion of on-road bicycling connections between the Village and community destinations.

Policy and Programming Recommendations:

The Master Plan also outlined policy and programming recommendations which are relevant to this plan. The plan encouraged the Town to seek Main Street Maine Community status to receive support and assistance from the Maine Downtown Center. It also recommended funding sidewalks and pedestrian amenities; performing a Safe Routes to School Assessment; coordinating with USM; and establishing a committee to review the options for improving town-wide public transit.

Parks, Greenspace and Trails:

The Master Plan advocated for the continuation of work with key groups to expand the trail network and connections along old RR corridor (Cross-Town Trail) to create a linear park system in the village and accessible the schools, municipal buildings and local businesses. The plan also recommended improved pedestrian connections from the Village to Tannery Brook Park, as well as trail expansion at Tannery Brook Park. Lastly, the plan called for evaluating and improving bicycle and pedestrian connections to existing or planned trails and open space.

2014 GORHAM VILLAGE PARKING STUDY

The Gorham Village Parking Study (see Figure 2.3) recommended redesign and reconstruction of the intersection of College Avenue and School Street to enhance pedestrian safety and reduce crossing distance. The Study called for implementing guidelines for the installation of new crosswalks to determine when crosswalks are warranted (e.g., pedestrian crossing demand). Citing safety concerns, the study recommended that the Town not install a crosswalk at the intersection of Route 25 and Pine Street near Green Street. Instead, it recommended further study to determine how best to cross pedestrians in the Route 25/Route 4 intersection area and to better understand pedestrian origin/destination patterns.

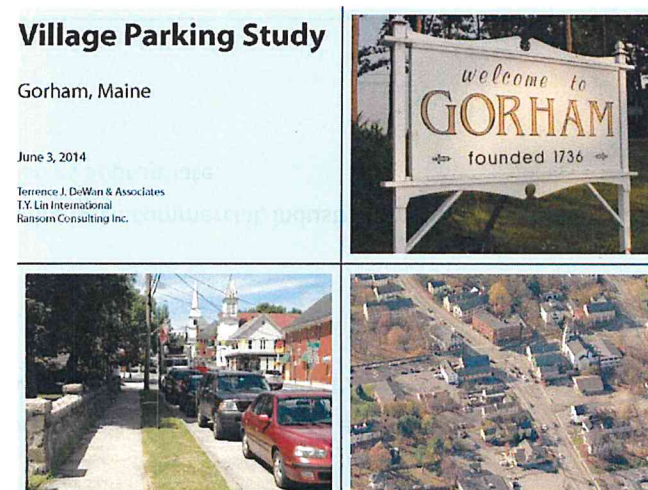


Figure 2.3 Cover of Village Parking Study completed in 2014.

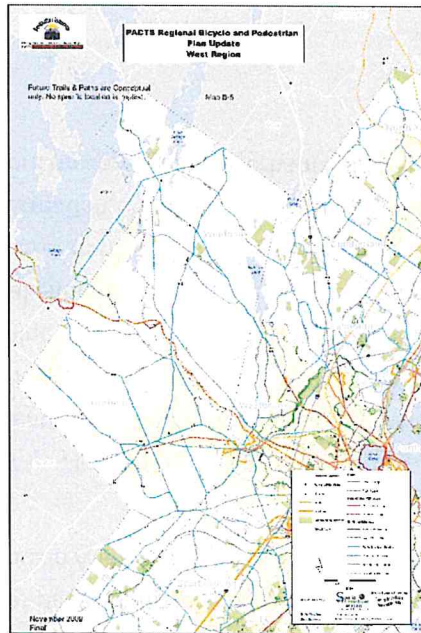


Figure 2.4 Excerpt from the PACTS Regional Bicycle and Pedestrian Plan Update 2009 showing the area including Gorham.

PACTS REGIONAL BICYCLE AND PEDESTRIAN PLAN UPDATE (2009)

The Portland Area Comprehensive Transportation System, the metropolitan planning agency for the Portland Region, commissioned a plan update for bicycle and pedestrian facilities in the region (see Figure 2.4). At the time of the report, Gorham had zero miles of bike lanes or shared lane markings on its 32.8 miles of paved roadway (projected to expand by 20.7 additional miles in the future). The PACTS plan, with its regional focus, earmarked the Mountain Division Trail connecting Gorham to Sebago Bay and Casco Bay as an important regional Bicycle and Pedestrian connection. It also identified Mosher's Corner (Route 25 between the Gorham Village Center and Downtown Westbrook) as a "Poor" pedestrian environment in need of improvement and rated the village as a "Good" pedestrian environment despite the automobile-centric development that degrades pedestrian safety and comfort in the area.

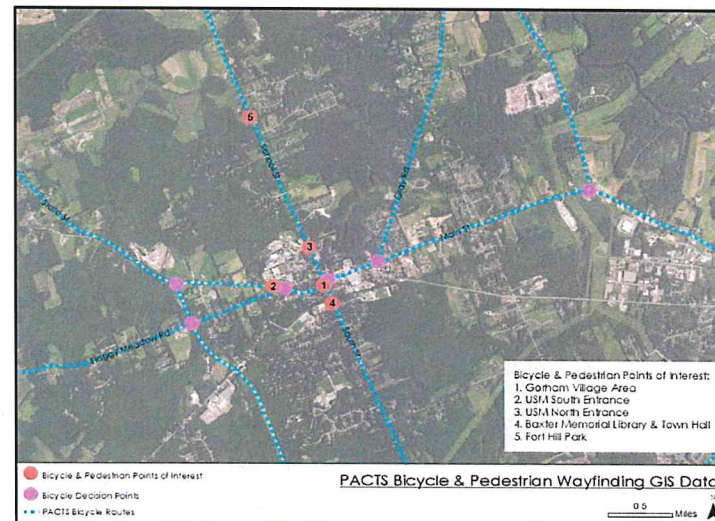


Figure 2.5 Map showcasing PACTS Bicycle & Pedestrian Wayfinding GIS Data in the Study Area.

PACTS BICYCLE AND PEDESTRIAN WAYFINDING GIS DATA

PACTS provided the study team with relevant data regarding their efforts to increase bicycle and pedestrian wayfinding in the region (as can be seen in Figure 2.5). It is important to note that this is only a subset of the data relevant to the study area for this project.

According to the data from PACTS, there are many priority bicycle routes in Gorham, including along Main Street / State Street, South Street / School Street, Gray Road, and Flaggy Meadow Road. The Study Area also contains five identified Bicycle and Pedestrian Points of Interest including both entrances to USM's Gorham Campus, the Village Area, Baxter Memorial Library / Town Hall, and Fort Hill Park. The area also includes six key decision points where PACTS has identified that wayfinding signage could be helpful in aiding bicyclists and pedestrians with their routing.

2.2 STUDY COMMITTEE COORDINATION & COLLABORATION

The Bicycle and Pedestrian Plan development included close coordination and collaboration with representatives of a Study Committee comprised of partner organizations. Study Committee partner organizations included the Town of Gorham, the Portland Area Comprehensive Transportation System (PACTS), the Maine Department of Transportation (Maine DOT), and the Greater Portland Council of Government (GPCOG). The Study Committee met at critical intervals throughout the planning effort to review and inform decision-making.

2.3 PUBLIC ENGAGEMENT

The Bicycle and Pedestrian Plan integrated innovative methods of public engagement with the community to better understand personal experiences and needs related to the transportation network and specifically, pedestrian and bicycle safety, infrastructure, and connectivity. To capture true and unbiased data from the public, project consultants from MMI employed a three-tier public outreach approach which included key stakeholder meetings, an online survey, and in-person Audit and Workshop events focused on both walking and bicycling.

KEY STAKEHOLDER MEETINGS

Identifying key stakeholders was a critical component of the inventory and assessment process. With guidance from the Study Committee, the planning team identified and interviewed 42 unique contacts representing a diversity of organizations and perspectives in the Town. For each stakeholder, the team sent out a brief project introduction followed by telephone interviews and/or in-person meetings. Key stakeholders included representatives from the Gorham Recreation Department, the Gorham Police Department, the University of Southern Maine's Gorham Campus, the Gorham Public Schools System, and Gorham High School.

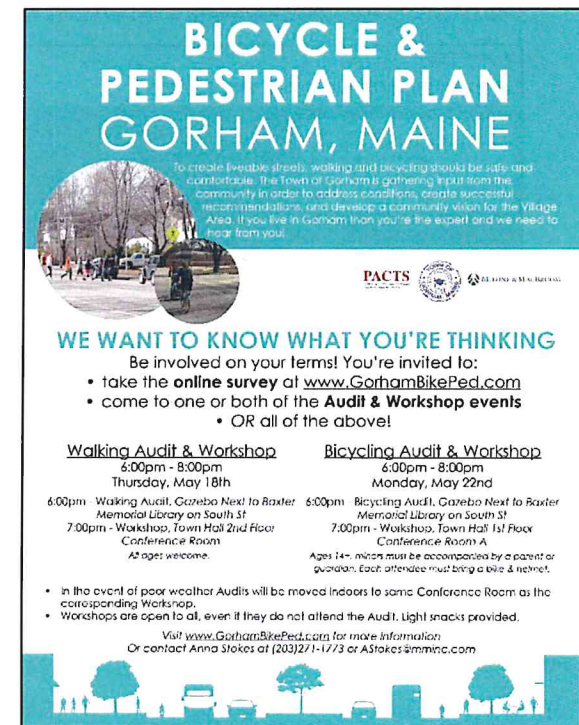


Figure 2.6: Outreach Flyer

Outreach Invitations & Information Dissemination

To publicize outreach, the planning team prepared marketing materials for the on-line survey and audit/workshop events. Several key stakeholders assisted in the distribution of outreach flyers (as seen in Figure 2.6) to their constituents via social media and emails. Information regarding the survey and workshop events was also disseminated by Town staff through social media, at the Town Library, and through local news sources. A project website provided key project information, including links to the online survey and information concerning the workshop even.

Online Survey

The planning process included the development and administration of an interactive online survey (see Figure 2.7). The survey was designed to take participants five to ten minutes to complete, and included five unique pages: the first page featured introductory and demographic questions; the second page featured questions for parents about their children's pedestrian and bicycling needs (and was only taken by participants who self-identified as having a child under the age of 18 living in Gorham); the third focused on pedestrian-related questions; the fourth included bicycling-related questions; and the final page allowed for comment and contact information. The survey's introductory page publicized audit/workshop events. The survey, which collected a total of 671 unique responses, had a margin of error of approximately 3.7% with a confidence level of 95%.

SURVEY TAKER DEMOGRAPHICS

The planning team designed the survey to collect introductory data about individuals, as well as information regarding their transportation habits, needs, and wants. The summary data showed that the majority (nearly 95%) of those who took the survey live in

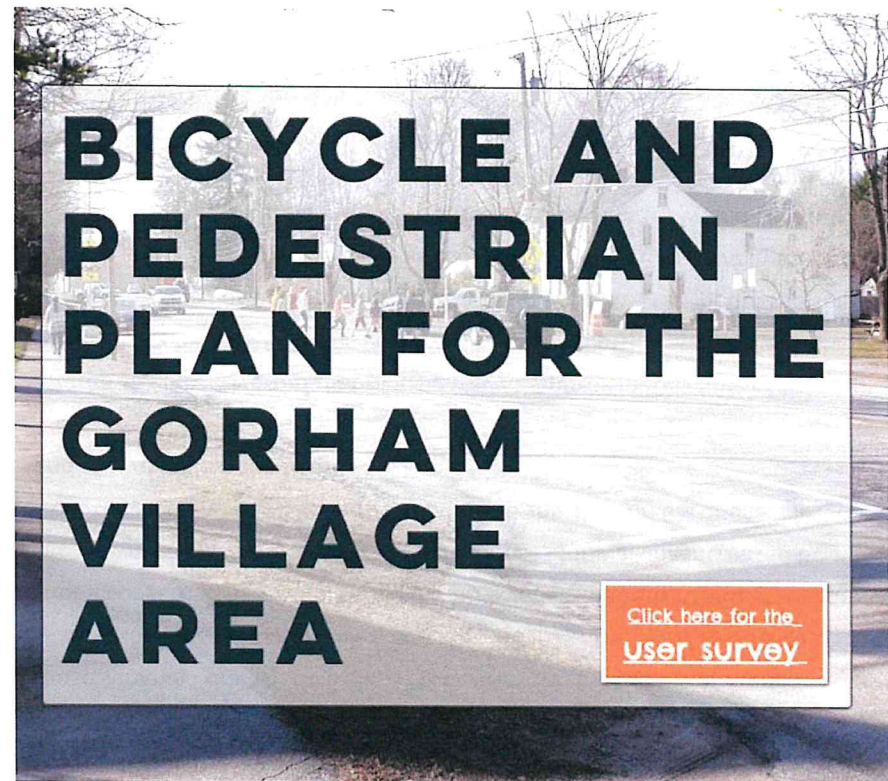


Figure 2.7: Online survey link from the project website.

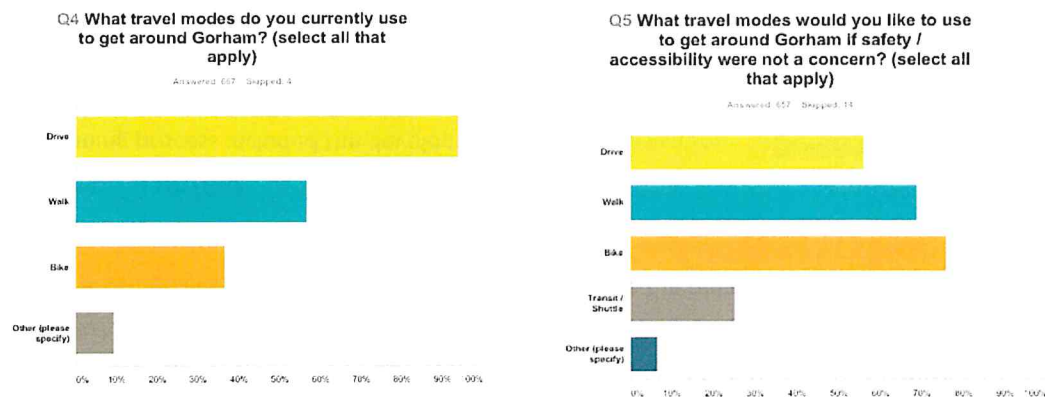
the Town of Gorham. Of these people, approximately half work in town while the other half commute to work elsewhere. The survey responses reflected a diversity of age groups, with 29% of respondents under the age of 18, 1% of respondents between the ages of 18 and 24, 14% of respondents between the ages of 25 and 34, 52% of respondents between the ages of 35 and 64, and 4% of respondents over the age of 65.

When asked about their utilization of local transportation modes, 94% of those surveyed drive, 57% walk, 37% bicycle, and 9% use other modes. Responses to the "Other" category included the use of scooters, snowmobiles, school buses, motorcycles, and skateboards. The survey also asked participants what travel modes they would use if safety/accessibility were not a concern. The results showed that, given a safer environment, residents preferred using alternate modes of transportation over driving. Responses for driving decreased by 38%, while responses for walking increased by 12% and bicycling increased 39%. Twenty-five (25) percent of users also stated that they would like to take transit and/or a shuttle, and 6% of users listed a variety of modes in the "Other" category including scooters, trails, buses, and snowmobiles (see figures 2.8 and 2.9).

Participant's current habits and future desires concerning regional travel differed significantly from that of local travel. Approximately 96% of those surveyed currently drive to regional destinations. Far fewer (9%) currently walk, ride a bicycle (16%), or take transit and/or shuttles (3%). As with the local questions, the future desires of survey participants included more multi-modal transportation in a regional context with 26% less people stating

that they would like to drive in the future and more stating they would like to walk (+21%), bicycle (+42%), or take transit (31%).

The survey queried whether the participant had any physical limitations that affected their ability to walk or ride bicycle. Over 4% of survey takers, or 28 people, answered affirmatively. Ages of those who self-identified as having physical limitations which affect their ability to walk or ride a bicycle was spread out amongst the categories. As



Figures 2.8 and 2.9: Answers to Survey Questions 4 and 5 regarding the current and future desired modal splits of survey.

ADA improvements are an integral piece of this study, it is important to understand the unique mobility and transportation needs of those who may have physical limitations. Those who answered "Yes" or "Other" to this question are 7% less likely to walk and 12% less likely to bike in the Town. They were also significantly more likely to be concerned about safety, lack of infrastructure, accessibility to key destinations, and high vehicular traffic volumes and speeds than those who self-identified as not having any physical limitations.

BICYCLING AND PEDESTRIAN QUESTIONS FOCUSED ON CHILDREN'S NEEDS

Bicycling and Pedestrian questions and focused on bicycle and pedestrian conditions specific to the needs of families with children in the Town.

Although their modal habits do not differ significantly in most categories from their adult counterparts, children are slightly more likely to walk or ride a bicycle in the Town of Gorham than adults are. Children in the Town of Gorham are walking and bicycling for many reasons: to visit a friend or neighbor (with 34% of children doing this "a few times a week or more"); walking for fitness (30%); and walking to school or a job (19%). Only a small portion of children (10%) walk to reach shopping, dining or entertainment venues. Children bicycle around town for slightly different reasons than they are walking, with the most common reason being for fitness (31%), followed by visiting a friend or neighbor (30%). Only 8% of children ride a bicycle to school or a job a few times a week or more, which is significantly less than the 19% of children who walk a few times a week or more for this reason.

Parents cited high vehicular traffic volumes and/or speeds, general safety, and a lack of pedestrian infrastructure as deterrents to children walking or bicycling to destinations.

PEDESTRIAN SATISFACTION

The survey's "Pedestrian Questions" focused on current conditions, future needs, and overall desires related to the pedestrian users and infrastructure. Overall, survey takers generally feel neutral or negatively about the overall pedestrian experience throughout the village area, with approximately 30% saying that they were satisfied or highly satisfied (see Figure 2.10). When asked about their top concerns regarding walking in the Gorham Village Area,

Q18 Please specify your level of satisfaction with the overall pedestrian/walking experience throughout the Gorham Village Area? (note: think about safety, sidewalk availability, crossing facilities, and general comfort)

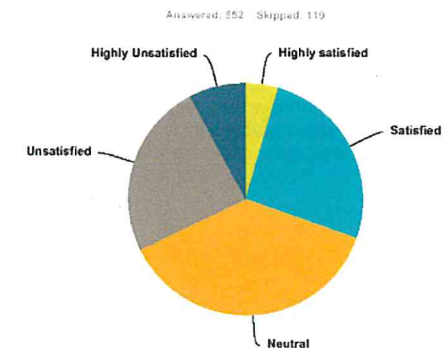


Figure 2.10: Question 18 from the survey regarding the level of satisfaction with the walking environment in the village.

the top three ranking concerns were high vehicular traffic volumes and speeds (65% of respondents), safety concerns (57%), and a lack of pedestrian infrastructure (50%).

Based on the survey responses, most people walk in the Town of Gorham for fitness purposes (approximately 41% doing this "a few times a week or more"). Far fewer walk for transportation purposes, such as walking to visit friends or neighbors (24%), walking to school or work (13%), or walking to reach shopping, dining or entertainment venues (12%). Unsurprisingly, those who both live and work/attend school in town were 7% more likely to walk to get to school or work (20%).

Common concerns included the need for more pedestrian amenities including street lighting, wayfinding signage, and furniture/benches. Commenters identified gaps in the sidewalk infrastructure and desired crossing points, such as across Main Street near Aroma Joes to Burger King. Many users reiterated the negative impact that uncomfortable levels of vehicular traffic and fast speeds have on walking in the Gorham Village Area and several people noted the need for improved regional transit connections.

BICYCLING SATISFACTION

The survey's "Bicycling Questions" focused on bicycling conditions and safety in the Gorham Village Area. Survey takers expressed less satisfaction with the overall experience of riding a bicycle than they are with walking in the Gorham Village Area. Overall, only approximately 18% of survey takers were "Satisfied" or "Highly Satisfied", while nearly 41% report that they are "Neutral," nearly 31% report that they are "Unsatisfied," and the final 10% state that they are "Highly Unsatisfied".

Asked about their top concerns related to bicycling in the Gorham Village Area, respondents cited safety concerns (67%), high vehicular traffic and speeds (64%), and a lack of bicycling infrastructure (56%). Additional feedback cited concerns about traffic signal design and operations, poor roadway maintenance, distracted drivers, lack of information regarding bicycle routes, and lack of education for drivers concerning bicyclists' rights to the roadway.

Q24 Please specify your level of satisfaction with the overall bicyclist experience throughout the Gorham Village Area? (note: think about safety, bicycle amenity availability, and general comfort)

Answered: 481 Skipped: 133

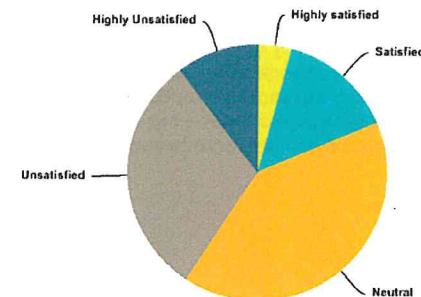


Figure 2.11: Question 24 from the survey regarding the level of satisfaction for bicycling in the village.

The survey section also sought additional commentary from participants regarding bicycling safety and accessibility in Gorham. Many respondents desire more bicycle infrastructure from dedicated bicycle lanes to multi-use trails. Some participants cited roadway pavement conditions, fading roadway striping, lack of shoulders, and a lack of street sweeping as deterrents to safe bicycling in the Town. Several missing bicycling links were also mentioned by respondents, including: a connection to the Mountain Division Trail, a route between Westbrook/Portland and Gorham, and routes that connect Gorham's many residential areas and neighborhoods to the town center. Comments reiterated the negative impact that the high levels of vehicular traffic, especially large truck and tractor trailer traffic, fast speeds, and distracted drivers have on bicycling in the Gorham Village Area.

FOCUS AREAS

The survey identified five key intersections and six village destinations and asked participants to rank their level of satisfaction related to bicycling and to walking. For bicycling, the survey asked respondents to consider safety, bicycling facilities, and general comfort. For walking, the survey asked respondents to consider overall safety, sidewalk availability, crossing facilities and general comfort. The three intersections of highest concern for pedestrians were New Portland Road at Main Street (with 42% choosing "Unsatisfied" or "Highly Unsatisfied"), Main Street at School Street (with 36%), and School Street at Campus Avenue (33%). The same three intersections were selected as have lowest levels of satisfaction for bicycling as well, with 44% of survey takers choosing "Unsatisfied" or "Highly Unsatisfied" for New Portland Road at Main Street, 42% for Main Street at School Street, and 33% for School Street at Campus Avenue.

Respondents were more satisfied overall with their experiences around key destinations, however there were still significant levels of concern for safety, sidewalk availability, crossing facilities, and general comfort in these areas. Three areas with the highest levels of pedestrian dissatisfaction included the area surrounding Narragansett Elementary School (with 24% choosing "Unsatisfied" or "Highly Unsatisfied"), the area surrounding Village Elementary School (with 21%), and the area surrounding Gorham High School (16%). The three destinations of most concerns for bicycling included the area surrounding University of Southern Maine's Gorham Campus (with 25% choosing "Unsatisfied" or "Highly Unsatisfied"), the area surrounding Narragansett Elementary School (with 24%), and the area surround Village Elementary School (with 22%).

Q19 Please rate your level of satisfaction concerning the pedestrian/walking experience at the following key intersections (note: think about safety, sidewalk availability, crossing facilities, and general comfort):

Answered: 548 Skipped: 126

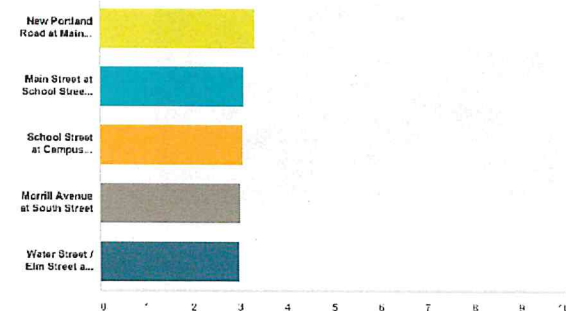


Figure 2.12 Question 19 from the survey regarding the level of satisfaction for specific intersections

Audit and Workshop Events

While the online survey gathered feedback from a large group of people, it was meant to work in conjunction with public workshop events, which allowed the project team to gain a more personalized understanding of the community's needs. The project team worked with the Town of Gorham to schedule two public audit and workshop events centered upon bicycling and walking.

WALKING AUDIT AND WORKSHOP

The Walking Audit and Workshop event was held on Thursday May 18th from 6pm to 8pm. The meeting began with the audit, where Milone and MacBroom project staff assisted in a walking tour of a portion of the town. Event attendees were guided through a thoughtful walking tour of the Town. During the audit event an on-going conversation about the surrounding built environment, pedestrian safety, the needs of the Town's population and potential recommendations to improve it (Figures 2.13 to 2.15).

Following the conclusion of the walking audit, the community members were invited to meet inside the Gorham Town Hall for the workshop portion of the event. Here, attendees were invited to discuss further what they noticed during the walking audit, as well as to point out any other pedestrian related items throughout the Town. The Milone & MacBroom project team facilitated a very successful discussion and a large map covering the entire Town was available to visually capture all feedback. The following information regarding existing conditions and potential future recommendations was collected during the walking audit and subsequent discussion:

Town Wide: Participants cited the need for traffic calming and reduced vehicle to create a safe pedestrian environment town-wide, as well as the need for a town-wide sidewalk assessment to identify the missing links.

Village School Area: In the area surrounding the Village School, participants noted that the School Zone should be well-defined and expanded to include both ends of Robie Street. Special attention should also be paid to the area around the Sebago Brew



Figures 2.13 to 2.15 depict the Walking Audit and Workshop Events as photographed by Milone & MacBroom Project Staff

Pub. Traffic calming in this area is also very important and necessary to reduce speeding in proximity to the school. Additionally, sidewalk gaps need to be filled in, including a missing link on Elm Street near Robie Street.

School Street at College Avenue Crossing: This crossing, used by many USM college students, doesn't feel safe. The crossing distance is very long, the intersection is very wide, and there are concerns about visibility.

School Street at Campus Avenue Crossing: The crossing from Campus Avenue across School Street feels unsafe. Participants discussed the potential for an actuated flashing light at the USM entrance (Campus Avenue) on School Street to alert drivers when pedestrians are trying to cross the road. Additionally, traffic calming should be implemented here to reduce speeding, especially for vehicles heading down the hill.

South Street Crossing at the Library/Town Hall: Participants agreed that the crossing guards and flashing crossing sign on South Street work well, however visibility is reduced by the on-street parking and a lack of bump-outs, which would provide better protection for pedestrians.

Municipal Center Walkability & Traffic Pattern: The Municipal Center area is an important pedestrian connection, especially for both students at Gorham High School and at Village Elementary School. The sidewalks from the municipal center to the high school should be more walkable. A curb-cut is also needed on the municipal campus as it is currently difficult for strollers and people with impaired mobility. Lastly, there should be three-way stop signs near the day care located on the municipal grounds as currently there is only one stop sign at the end of Ball Field Road.

Johnson Road to Tink Drive: There is currently a sidewalk gap between Johnson Road and Tink Drive. A sidewalk should be added adjacent to the cemetery.

High School Access Road: The Access Road is an important pedestrian area. A sidewalk is needed on the high school access road from the municipal center.

Connections to Cross Town Trail: A sidewalk from the Village to the Cross-Town Trail should be added to provide a safe pedestrian connection for those wanting to utilize the trail.

BICYCLING AUDIT AND WORKSHOP

The planning team conducted a Bicycling Audit and Workshop in early Spring 2017. Lead by Jim Tassé, the project bicycle planning consultant, Riders were lead on a planned route around the Town of Gorham to experience a variety of road and intersections types (see Figure 2.17 on the next page). As it is tough to have thoughtful conversations while riding safely in a group, comments were collected during the workshop portion of the event.

The workshop, which directly followed the audit, had a similar format to that held for the Walking Audit was conducted where participants marked significant places and findings from the ride on a map. The workshop also included an in-depth discussion of bicycling safety, current bicycling conditions, and potential facility recommendations. The following key points regarding existing conditions and recommendations were discussed:

Route 114 from Weeks Road to Green Street: Participants felt this portion of Route 114 is unsafe for children to ride on the road. Instead, children currently ride on the sidewalk and conflict with pedestrians. The current configuration of on-street parking in this area interferes with bicycle traffic.

Weeks Road and Neighborhood Connections to Narragansett Street: Traffic volumes in the area are low most times, however traffic surges around the beginning/end of schooldays and during extra-curricular activities. On-street bicycle facilities would be helpful and appropriate here.

Narragansett Street: This route presently has a good shoulder which is helpful to bicyclists. However, it is important to note that there is considerable truck traffic in this area as well.

Route 25 from Narragansett Street to Route 114: This is an overall dangerous area for bicyclists.



Figure 2.16 Bicyclists riding near the Narragansett School.

Route 25 from New Portland Road to Route 114: This area functions as a cut through for Rite Aid. Bicyclists use the pedestrian crosswalk to safely cross the road. There is a very high traffic area that creates dangerous conditions for bicyclists. However, with on-street bicycle facilities this area could be greatly improved.

Route 25 from the Gorham Town Line to New Portland Road: Fast traffic causes dangerous conditions for bicyclists and pedestrians in this area. There have also be notable instances of road rage against bicyclists here. However, the wide shoulder does provide some space for bicyclists.

New Portland Road – Tink Drive near the Railroad Bed: This area is very dangerous and currently has no shoulders.

Elm/Robie Street to Lincoln Street: This area experiences very heavy traffic during school hours. Elm/Robie and Lincoln Street serve as cut-through routes, and as a result, traffic volumes and speeds are too high through the school zone.

Gorham Representative Bicycle Conditions Ride 5/22/17

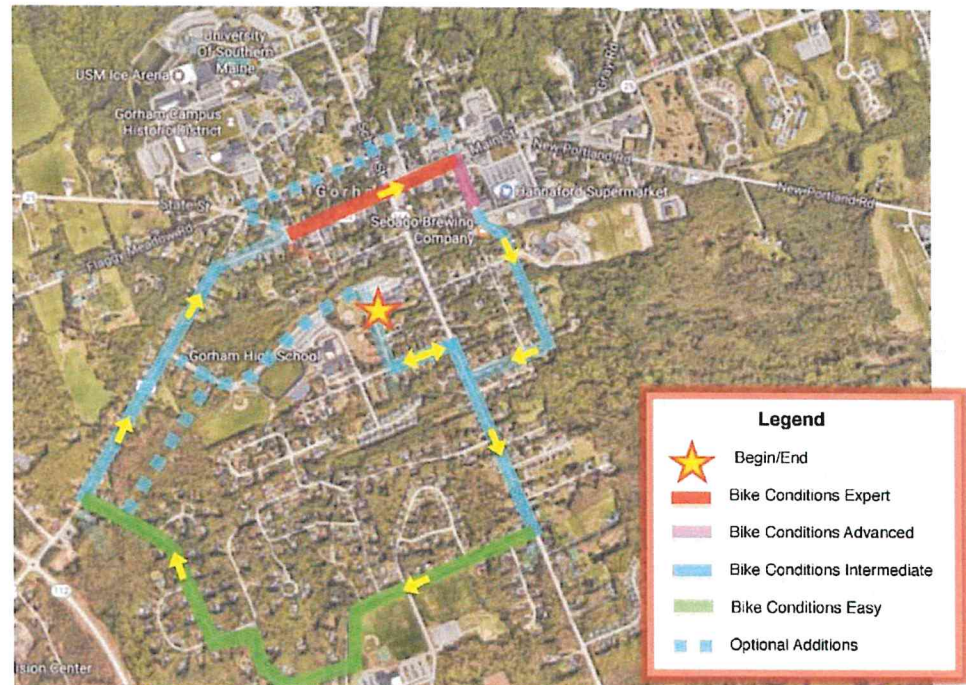


Figure 2.17: Bicycling Audit Route Map

SECTION 3 – EXISTING CONDITIONS

In addition to review and assimilation of prior studies and plans and the data gleaned from public outreach, the planning process included a thorough inventory and assessment of the physical conditions of the study area. A description of the pedestrian, bicycle, and traffic conditions is provided in this section.

3.1: PEDESTRIANS

The project team conducted physical audits of pedestrian infrastructure along key corridors in the Gorham Village Area. The inventory/assessment team surveyed infrastructure condition, safety, and comfort levels for pedestrians. Street segment inventories considered the presence of sidewalks (one or both sides), as well as the quality of sidewalks (width, surface conditions, separation from traffic, and accessibility for all users). This work also included an examination of crossings and safety factors at intersections: the presence of crossing facilities, whether the facilities were signalized, the quality of the facilities, and the accessibility and ease of access for all users was noted. Signage pertaining to bicyclists and pedestrians was also noted.

MAJOR ROUTES & CROSSINGS

The South Street (Route 114) area is equipped with two signed and marked mid-block crosswalks. One is in the vicinity of Preble Street which assists foot traffic from the Village Elementary School, and the other is at the Municipal Center and Library, and is equipped with an RFB. This area is also used to hold a farmer's market on weekends, which also generates a high amount of pedestrian activity. There generally are sidewalks along both sides of the roadway throughout this area.

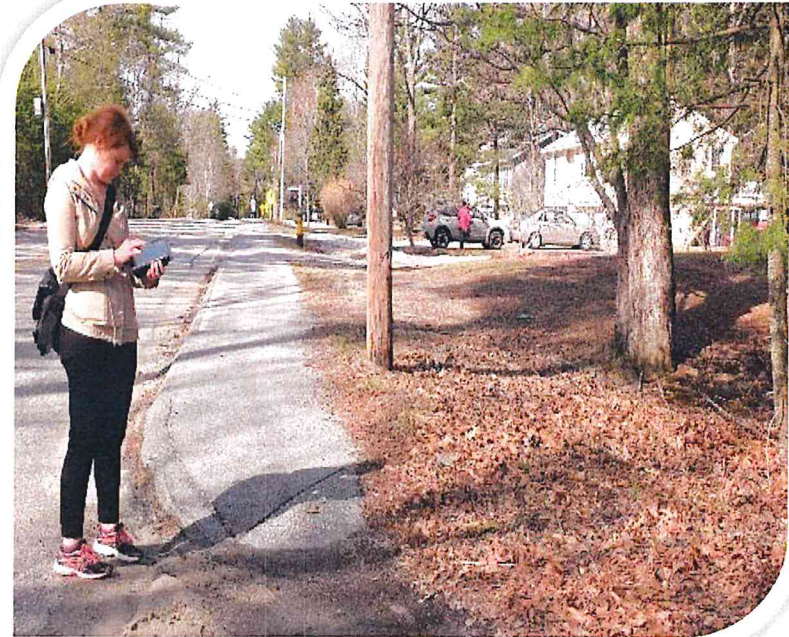


Figure 3.1: A team member from the MMI project team assesses sidewalks in Gorham

School Street (Route 114) has a flashing beacon at the Campus Avenue intersection and is marked with a crosswalk. This area of School Street is equipped with sidewalks on both sides of the roadway near the intersection of Route 25; however, north of College Avenue there are no sidewalks on the west side of the roadway.

Main Street east of Route 114 generally has sidewalks on both sides of the roadway through the study area. Main Street west of Route 114 does not offer any opportunities to cross the roadway. There generally are sidewalks on both sides of this roadway but portions are less than 5 feet wide and in poor condition.

Two of the traffic signals on this section of Main Street at Route 114 and Water Street/Elm Street, are equipped with pedestrian walk phases with crosswalks and ramps. The Water Street intersection lacks detectable warning strips at the ramps. The intersection at New Portland Road does not have an existing pedestrian walk phase.

Easterly on Main Street, there are no formalized opportunities for mid-block crossings for bicycles or pedestrians. In many cases, people cross a high-volume roadway in an unprotected fashion. Generally, throughout the study area there are no formalized bike lanes however, existing shoulder widths in portions of the study area are already wide enough to support bike lanes.



Figure 3.2 Focus area intersections and mid-block crossing.



Figure 3.3 and 3.4 Existing mid-block crossing user-activated rapid flashing beacon and the pedestrian light activation button at the Main Street crossing.

SIDEWALK CONDITIONS

The condition ratings for sidewalks was divided into 4 categories: Excellent, Good, Fair, and Poor. Examples of how these ratings were determined are outlined below. A spreadsheet of the sidewalk assessment with planning level cost estimates for repairs has been included as Appendix 1 at the end of the report.

Excellent

A rating of Excellent means the sidewalk appears to be in new condition. This is not necessarily to mean that the sidewalk was recently built, but only that the sidewalk does not have appear to have significantly deteriorated. An example of an excellent sidewalk is shown below, from Main Street in Gorham near School Street. The sidewalk does not exhibit any traits which would downgrade its condition significantly, with no cracks, spalling, gaps, or rises between segments. There may be limited minor issues, but none that affect the use of the sidewalk.

Good

A rating of Good indicates the sidewalk is in a satisfactory condition. This would mean that there is some deterioration of the sidewalk that would differentiate its condition from an excellent sidewalk, but the condition does not appear to significantly impair any user from safely and efficiently operating on the sidewalk. An example of a Good sidewalk is shown below on South Street south of Lincoln Street. The sidewalk does not have significant cracking, spalling, gaps or rises between segments which would have a great impact on any user mobility. In this case, there is even a section of the sidewalk that has been repaired, though there is not a negative change in how the sidewalk can be used. Most sidewalks in Gorham can be rated as Good.



Figure 3.5: An example of a sidewalk that would receive an "Excellent" rating.



Figure 3.6: An example of a sidewalk that would receive a "Good" rating.

Fair

A fair rating means there are notes issues with the condition of the sidewalk. This may mean a deterioration of the sidewalk such as cracking, spalling, gaps, or rises that may somewhat impact user mobility. An example of a fair sidewalk in Gorham would be a section on Main Street east of Libby Avenue. The sidewalk is now showing clear signs of deterioration. While the section may adequately allow most users to pass with ease, users with mobility issues may begin to have trouble traversing.



Figure 3.7: An example of a sidewalk that would receive a “Fair” rating.

Poor

A sidewalk with a poor rating exhibits significant issues with its condition that would give most users, especially users with mobility issues, difficulty in use. The sidewalk would have clear signs of cracking, spalling, gaps, or rises that would affect the freedom of movement for users. An example of a sidewalk in poor condition would be Green Street in Gorham. This sidewalk would be difficult to use for most users, in this case clearly showing major cracks or missing sections, spalling of the sidewalk material, gaps between sidewalk segments, and rises between segments which may pose a tripping hazard. This segment also is narrower than 5’ wide. A narrow sidewalk can create issues for mobility and are more prone to obstructions in access.



Figure 3.8: An example of a sidewalk that would receive a “Poor” rating.

SIDEWALK PRIORITIZATION

After documenting the sidewalk conditions in the village study area (see Appendix 1 for full assessment, see Figure 3.9 for example), the project team designated three potential priority ratings: low, medium, and high. Sidewalks with excellent pavement condition were rated low priority for repair; sidewalks in satisfactory condition were rated medium priority for repair; and sidewalks in poor condition sidewalks were rated as high priority for repair. Additionally, any pending future sidewalks were rated as medium. The classification upgraded by one priority level those sidewalks measuring less than 5 feet wide or with a critical gap in coverage. This prioritization of segments was further refined to respond to the recommendations of past planning efforts as well as input from the community.

Upon completion of the prioritization exercise, the team compiled an Excel document intended to assist the City in planning its improvement efforts. This working document identifies and prioritizes sidewalk projects, filtered by category (priority, location, cost), to enable the City to tailor lists of projects for consideration. All sidewalk segments for the town are listed and include the GIS-derived length of the section, as well as the estimated costs for reconstruction, rehabilitation, and new construction (concrete). For flexibility, the spreadsheet includes costs for varying funding scenarios, from in-house construction to FHWA-funded projects. For example, if the town is proposing that public works build a portion of the new proposed sidewalks, projects could be filtered so that only proposed new segments are shown with a locally built cost estimate. Another example would be to filter only poor condition rated sidewalks to be shown with cost estimates to

AssetID	Street	SHAPE Length	Material	Priority	Net	Condition	CostNewFederal	CostNewLocal	CostRehabFederal	CostRehabLocal	Concrete
44	Oak Wood Dr	3496	Pavement	2	0	3	\$ 436,991	\$ 244,715	\$ 349,592	\$ 174,796	\$ 524,389
32	Laurel Pines Dr	2807	Pavement	2	0	3	\$ 350,816	\$ 156,457	\$ 280,653	\$ 140,326	\$ 420,979
43	Running Springs Rd	2206	Pavement	2	0	3	\$ 275,742	\$ 154,416	\$ 220,594	\$ 110,297	\$ 330,890
49	Village Woods Cir	2157	Pavement	2	0	3	\$ 209,643	\$ 151,001	\$ 215,716	\$ 107,858	\$ 323,574
25	Main St	2100	Pavement	1	0	3	\$ 262,472	\$ 146,984	\$ 209,977	\$ 104,989	\$ 314,968
51	Gray Rd	1905	Pavement	2	0	3	\$ 238,111	\$ 131,342	\$ 190,489	\$ 95,244	\$ 285,731
9	Hickory Ln	1819	Pavement	1	0	3	\$ 227,115	\$ 127,296	\$ 181,852	\$ 90,926	\$ 272,778
3	Garden Ave	1579	Pavement	1	1	4	\$ 197,171	\$ 110,529	\$ 157,888	\$ 78,949	\$ 216,847
118	Main St	1538	Pavement	2	0	3	\$ 192,226	\$ 107,646	\$ 155,780	\$ 76,890	\$ 230,671
196	College Ave	1158		2	1	0	\$ 169,755	\$ 95,063	\$ 135,804	\$ 67,902	\$ 201,706
202	Chick Drive	1333		2	1	0	\$ 166,668	\$ 93,334	\$ 133,334	\$ 66,667	\$ 200,001
31	Canterbury Pine Dr	1322	Pavement	2	0	3	\$ 166,551	\$ 93,269	\$ 131,241	\$ 66,621	\$ 199,862
199	Robie Street	1216		2	1	0	\$ 151,991	\$ 85,115	\$ 121,593	\$ 60,797	\$ 182,390
158	Robie Street	1191		2	1	0	\$ 148,909	\$ 83,389	\$ 119,128	\$ 59,564	\$ 178,691
18	Mosher Rd	1139	Pavement	1	0	3	\$ 142,315	\$ 79,697	\$ 113,852	\$ 56,926	\$ 170,779
67	Greene St	1078	Concrete	1	0	4	\$ 134,699	\$ 75,432	\$ 107,759	\$ 53,880	\$ 161,639
45	Running Springs Rd	1022	Pavement	2	0	3	\$ 127,728	\$ 71,528	\$ 102,182	\$ 51,091	\$ 153,274
201	New Portland Road	930		2	1	0	\$ 116,218	\$ 65,093	\$ 92,991	\$ 46,495	\$ 139,486
193	Main St	878		2	1	0	\$ 109,713	\$ 64,439	\$ 87,770	\$ 43,885	\$ 131,656
5	HIGHMEADOW DR	860	Pavement	1	0	3	\$ 107,881	\$ 60,191	\$ 85,987	\$ 42,993	\$ 128,980
26	Main St	841	Pavement	2	0	3	\$ 105,182	\$ 58,902	\$ 84,145	\$ 42,074	\$ 126,218
28	Main St	750	Pavement	1	0	3	\$ 91,691	\$ 52,467	\$ 74,943	\$ 37,476	\$ 112,429
33	Winterberry Dr	688	Pavement	2	0	3	\$ 85,979	\$ 48,148	\$ 68,783	\$ 34,391	\$ 101,174
89	State St	656	Pavement	2	0	3	\$ 81,998	\$ 45,919	\$ 65,599	\$ 32,799	\$ 98,398
103	Elm St	599	Pavement	2	0	3	\$ 74,822	\$ 41,901	\$ 59,858	\$ 29,929	\$ 89,787
87	College Ave	564	Pavement	2	0	3	\$ 70,509	\$ 39,485	\$ 56,407	\$ 28,204	\$ 84,611
48	Sunrise Ln	497	Pavement	2	0	3	\$ 62,084	\$ 34,767	\$ 49,667	\$ 24,833	\$ 74,500
19	Mosher Rd	483	Pavement	1	0	4	\$ 60,343	\$ 33,792	\$ 48,274	\$ 24,137	\$ 72,411
200	Robie Street	465		1	1	0	\$ 58,161	\$ 32,570	\$ 46,529	\$ 23,264	\$ 69,793
29	Main St	461	Pavement	2	0	3	\$ 57,641	\$ 32,279	\$ 46,113	\$ 23,056	\$ 69,169
88	College Ave	442	Pavement	2	0	3	\$ 55,238	\$ 30,934	\$ 44,191	\$ 22,095	\$ 66,286
48	Lutina Ter	431	Pavement	2	0	3	\$ 51,900	\$ 30,184	\$ 41,120	\$ 21,560	\$ 64,679
197	College Ave	423		2	1	0	\$ 52,884	\$ 29,593	\$ 42,276	\$ 21,138	\$ 63,413
11	Path	388	Pavement	2	0	3	\$ 48,546	\$ 27,186	\$ 38,817	\$ 19,419	\$ 58,256
111	Morrill Ave	380	Pavement	2	0	3	\$ 47,558	\$ 26,611	\$ 38,046	\$ 19,023	\$ 57,070
184	New Portland Rd	360	Pavement	2	0	3	\$ 45,058	\$ 25,232	\$ 36,046	\$ 18,023	\$ 54,069
7	HIGHMEADOW DR	354	Pavement	1	0	3	\$ 44,202	\$ 24,733	\$ 35,361	\$ 17,681	\$ 51,012

Figure 3.9: An example section of the sidewalk assessment for the village, which includes documentation of the sidewalk conditions, recommended actions, priorities and costs for implementation.

the federal standard shown for a MaineDOT project proposal. For all summaries, the estimated cost per linear foot, assuming a 5' wide sidewalk, can be changed as better estimates or future year cost increases are known.

3.2 BICYCLES

Riding conditions in Gorham were assessed for a typical, "Interested but Concerned" rider in terms of objectively measureable roadway factors such as lane width and AADT, and complemented by expert judgment.

The riding conditions in Gorham were assessed for a hypothetical "Interested but Concerned" bicycle rider as described in Roger Geller's bicycle rider typology developed in Portland, Oregon in 2005. This typology breaks a population into four types of bicycle riders: Strong and Fearless; Enthused and Confident; Interested but Concerned; and No How, No Way (see Figure 3.10). The Interested but Concerned Rider is the most common type of rider in the US, and may be assumed to constitute approximately 60% of the riders in any area.

Interested but Concerned riders have a desire to use bicycles more for recreation and transportation, but also have concerns about safety that prevent them from riding more often. This rider is generally not very comfortable on non-residential roadways without any bicycle facilities. Such a rider often has:

- * limited experience and confidence with traffic situations
- * limited bicycle handling skills
- * limited physical abilities
- * a perception that they would ride more were it not for having to share the road with motor vehicle traffic

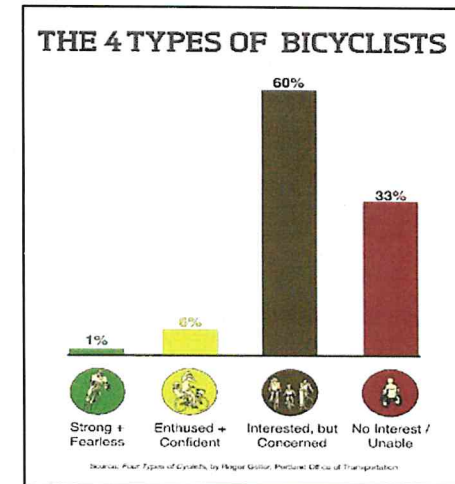


Figure 3.10: The 4 Types of Bicyclists

In this study, the category may be assumed to include competent child riders over the age of 10 who may have good handling skills and physical abilities, but less traffic experience and judgment than adults in this I-C category.

The Interested but Concerned rider represents a common type that is likely to be influenced by the presence of bicycle facilities that provide guidance for riding in, or separation from, traffic. As Geller notes in his paper, "if cycling is to be universally adopted as a means of transportation, then the concerns of the majority must be addressed. In this typology, that majority is the 'interested but concerned.'" As such, the Interested but Concerned rider is the appropriate type to keep in mind when assessing bicycle conditions in Gorham.

It should be noted that riders of the upper two categories of the Geller typology, "Strong and Fearless" and "Enthusied and Confident," would probably view the bicycle level of service grades given to Gorham road segments in this report to be at least one grade lower than they might consider them, i.e. a road segment labeled as "Low" in this report might be viewed as only "Moderately Low" for a more skilled and experienced rider.



Figure 3.11 School-aged child crossing at the South Street mid-block crossing between the library and school route.

Approx. Lane Width	Value	Shoulder Width	Value	AADT	Value	Pavement Condition	Value	Posted Speed	Value	Parking	Value	Road Complexity	Value	Expert Estimation	Value
14-15	3	≥6	4	≤2000	5	New	3	≤25	3	No	2	Simple	2	Extremely High	5
12 to 13	2	5	3	2000-3400	4	Good	2	30-35	2	Yes	0	Moderate	1	High	4
10 to 11	1	4	2	3500-4400	3	Fair	1	40-45	1			Complex	0	Mod. High	3
≤10	0	3	1	4500-6400	2	Poor	0	≥50	0					Mod Low	2
		0-2	0	6500-8400	1									Low	1
				8500+	0									Very low	0

Table 3.1: Road Segment Conditions Assessment

For this report, road segments in Gorham were evaluated and graded on a five-point scale that was based upon two sources:

- * The Bicycle Level of Service (BLOS) 2.0 model developed by Sprinkle Consulting in 2007
- * An evaluation system used by Wilbur Smith to assess bicycle conditions on Mount Desert Island in 2002

Average Score	Grade	Description of BLOS
≥3.5	A	Extremely High
3.49-3.00	B	High
2.9-2.5	C	Moderately High
2.49-2.00	D	Moderately Low
1.9-1.5	E	Low
≤1.49	F	Extremely Low

In the system used for Gorham, each road segment's conditions were assigned values for lane width, shoulder width, AADT, pavement condition, posted speed, presence of parking, complexity of traffic situation, and an additional expert estimation value (see Table 3.2).

Based on the average score each roadway segment received based on these variables, a roadway segment could receive any of the following assessments of its Bicycle Level of Service (BLOS) (see table 3.2). The BLOS was calculated for the main corridors in the Gorham Village Area, as can be seen in Figure 3.12 on the following page.

Table 3.2: Bicycle Level of Service (BLOS) Grading System

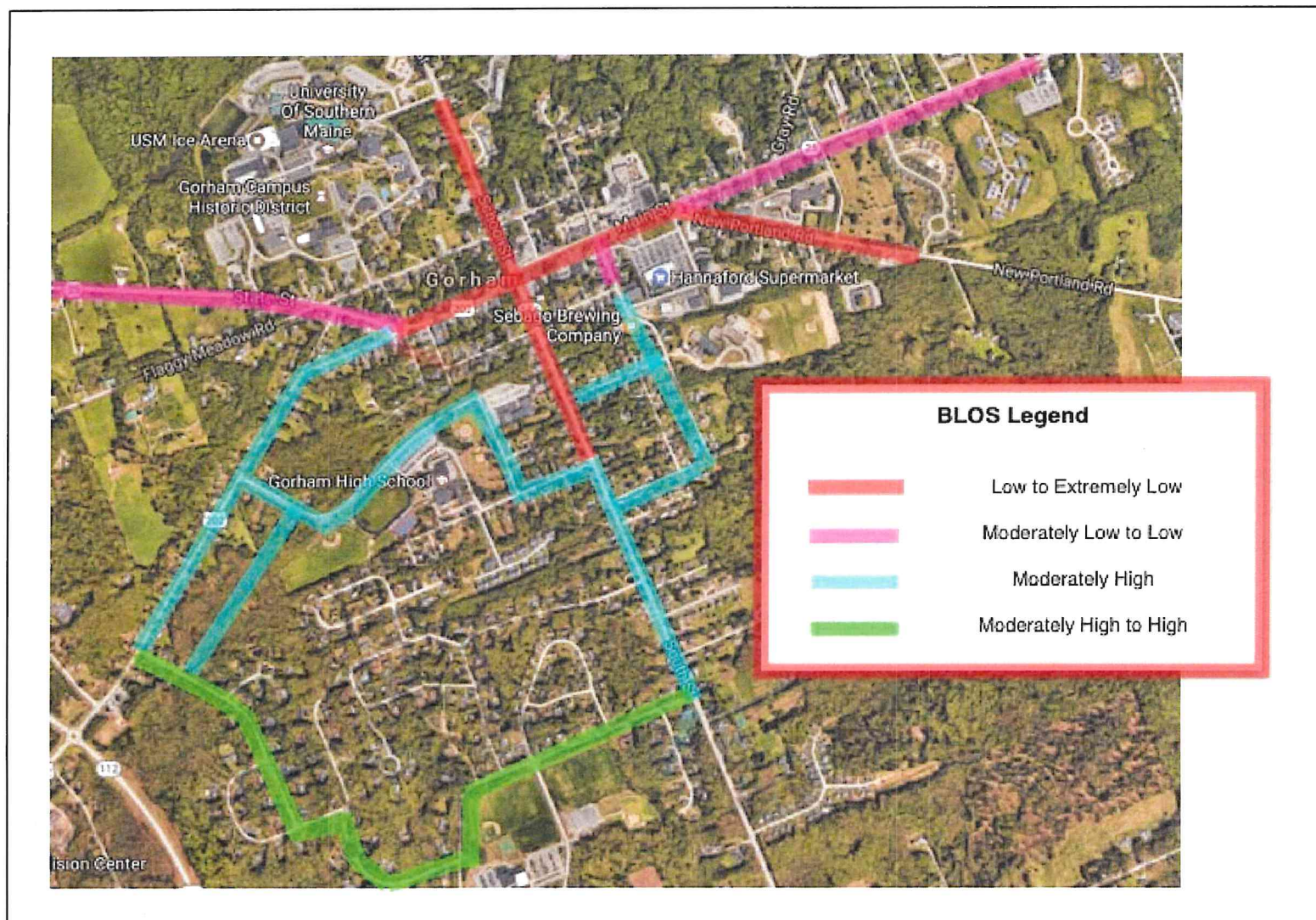


Figure 3.12: Bicycle Existing Conditions - Bicycle Level of Service

3.3 TRAFFIC

The traffic characteristics of the Gorham Village area roads vary, with ranges in volume from 20,830 average daily traffic (ADT) on Main Street to 4,690 ADT on Gray Road. There is little freight data for the village area, but the truck percentages for the major roads in this region generally range between 4% and 7% medium and heavy trucks, or classes 4 to 13 on the FHWA vehicle classification (see Figure 3.4).

Like many Main Streets found in small towns across the United States, the Main Street / State Street Corridor in the Town of Gorham is an important axis, both connecting the Town to other areas as well as being a home to many of the Town's local amenities, shopping, and entertainment venues. East of Route 114, Main Street has a Federal Functional Classification of Principal Arterial and a MaineDOT Highway Corridor Priority of 1 (see Figure 3.13). This Route is a part of the National Highway System. The posted speed is 25 MPH with a volume of 20,830 ADT. The width of the road is approximately 42 feet wide, which narrows to 38 feet to the east. The medium and heavy truck traffic is approximately 7%. Sidewalks exist throughout the corridor but heavy traffic and high vehicular speeds makes walking often still feel unsafe. There are no bicycle amenities along the corridor.

West of South Street / School Street (Route 114) Route 25 changes names and becomes State Street. This portion of the corridor still has a Federal Functional Classification of Principal Arterial and a MaineDOT Highway Corridor Priority of 1, which changes to a priority 2 and Minor Arterial classification west of the intersection at Narragansett Street. This Route is a part of the National Highway System. The posted speed is 25 MPH with a volume of 16,390 ADT. The width of the road is approximately 38 feet wide, which narrows to 34 feet to the west. The medium and heavy truck traffic is approximately 5.8% of the total volume.

The School Street / South Street (Route 114) corridor has a posted speed limit of 25mph. It has a Federal Functional Classification of Major Collector and a MaineDOT Highway Corridor Priority of 3, but is not a part of the National Highway System. Sidewalks exist throughout the corridor but heavy traffic and high vehicular speeds makes walking often still feel unsafe. There are no bicycle amenities along the corridor, but a wide shoulder towards



Figure 3.13: Westbound vehicular traffic on Main Street / Route 25 builds up during the evening commute hour as people head towards the Gorham Village Area

the southern end makes it feel safe. North of Main Street / State Street (Route 25) Route 114 is known as School Street, with a volume of 12,650 ADT. The width of the road is approximately 38 feet wide, which narrows down to 30 feet to the north.

South of Main Street / State Street (Route 25) Route 114 is known as South Street. If approaching Gorham from the south, this corridor is wide with ~4.5 feet wide shoulders. The ADT is lower south of the Route 25 intersection, with an ADT of 9,030. The width of the road is approximately 42 feet wide on average and has a medium and heavy truck traffic is approximately 4%. Approximately 150 south of Green St, parking lanes are painted on each side of the road.

New Portland Road, south of Route 25, has a Federal Functional Classification of Major Collector and a MaineDOT Highway Corridor Priority of 3. This Route is not a part of the National Highway System. The posted speed is 25 MPH with a volume of 6,980 ADT. The width of the road is approximately 36 feet wide, which narrows to 24 feet to the east.

HIGH CRASH LOCATIONS

As part of the evaluation process, the team identified problematic intersections with high crash rates. A High Crash Location is defined by MaineDOT as an intersection with a Critical Rate Factor (CRF) greater than 1.0 and more than 8 crashes in a three-year period. The number of expected traffic collisions from similar intersections is compared with the number of actual crashes. The ratio of the two rates produces the CRF. If the CRF is greater than 1.0, then the intersection is experiencing crashes that may not be random in nature. Appendix 2 has the latest crash diagrams produced by MaineDOT. These diagrams summarize the crashes for the latest three- year period showing the approximate locations of the crashes and the type of impact.

The Town of Gorham has four high crash locations in its downtown area as shown in Figure 3.14 on the following page. These are the intersections and segments of:

- * South Street from Main Street to Preble Street
- * School Street at Campus Avenue
- * Main Street from Elm Street to New Portland Road
- * Main Street at Gray Road

Gorham Village Bike Ped Study

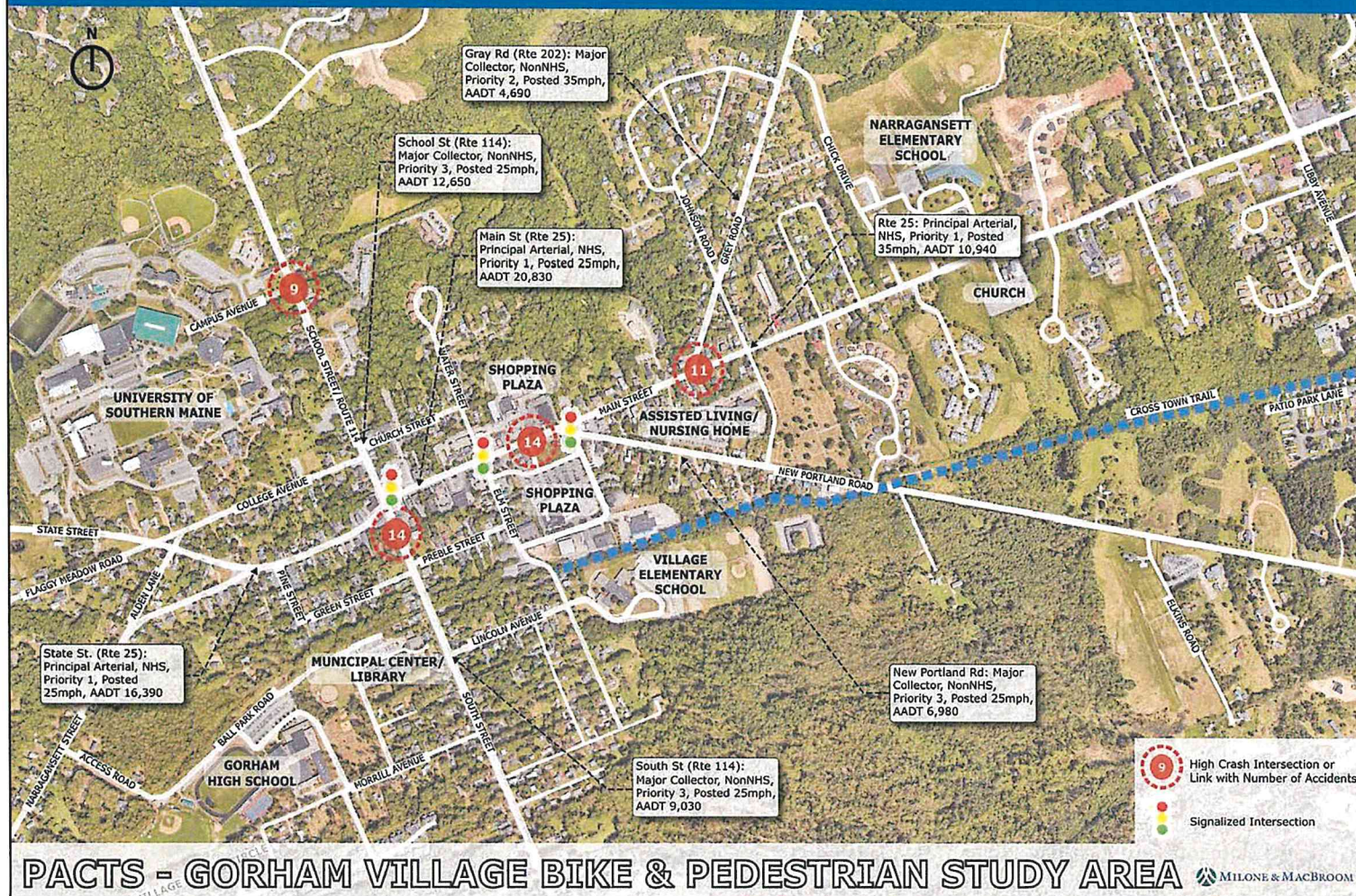


Figure 3.14: Traffic data and High Crash Locations in the Study Area

South Street from Main Street to Preble Street

This section of road (Element 3106163) had 14 crashes from 2014-2016 with a CRF of 3.32. While the number of crashes (and the corresponding CRF) is high, the actual severity of crashes are low. Police reports show that of the 14 crashes, only 4 involved minor injuries. The remaining crashes involved property damage only.

School Street at Campus Avenue

This intersection (Node 15974) is no longer considered a High Crash Location in the latest MaineDOT time-period, falling to 7 crashes in three years from the 2015 HCL report. However, the CRF rate of 1.96 shows that the intersection clearly has more crashes than should be expected. Of these crashes, two involved bicycles and a failure to properly yield to traffic. There did not appear to be any patterns with the remaining crashes. One crash resulted in very serious incapacitating injuries.

Main Street from Elm Street to New Portland Road

This section of road had 11 crashes (Element 3106574) from 2014-2016 with a CRF of 1.04. Only two of these crashes had minor injuries involved, with the remaining only resulting in property damage to the vehicles. There did not appear to be any patterns to the crashes in the section.

Main Street at Gray Road

This intersection (Node 17161) had 11 crashes from 2014-2016 with a CRF of 2.01. One crash involved a bicycle. This was determined to be the fault of the bicyclist, who was riding on the sidewalk and did not stop at the crosswalk. The overall crash patterns are typical for signalized intersections with seven involving rear end crashes. Two of the crashes involved intersection turning movements, where drivers make improper turns that do not yield to traffic.

3.4: PLANNED TRANSIT

The Town of Gorham currently has no formal transit lines, but that is about to change. METRO, Maine's largest public transit agency, has begun planning for a joint effort with the University of Southern Maine's Gorham Campus to bring a new commuter bus to the area in August, 2018. This bus route, named the Husky Line, is a part of the transit system's West Expansion Project. The logistics of this project have not yet been finalized, but it is integral that this study consider its affects, as the bus route's success will rely partly on Gorham residents' and visitor's ability to access the future METRO bus stops via walking and bicycling. METRO recognizes the need for stops to be accessible for pedestrians and bicyclists.

METRO envisions that the Husky Line will run as similarly to a Bus-Rapid-Transit system as possible. They are planning only a few stops in Gorham, and then a high-speed express route to Portland from there with the inclusion of several on road strategies to ensure the route runs efficiently and on time. The bus will give commuters another option, allowing them to drive less and enjoy a reduced amount of stress during their commute.

The Husky Line (whose proposed routes can be seen in Figure 3.15) will connect the University of Southern Maine's Gorham and Portland campuses, providing a valuable service to students and commuters alike. This route will also help to relieve the present overcrowding

Transit West Expansion

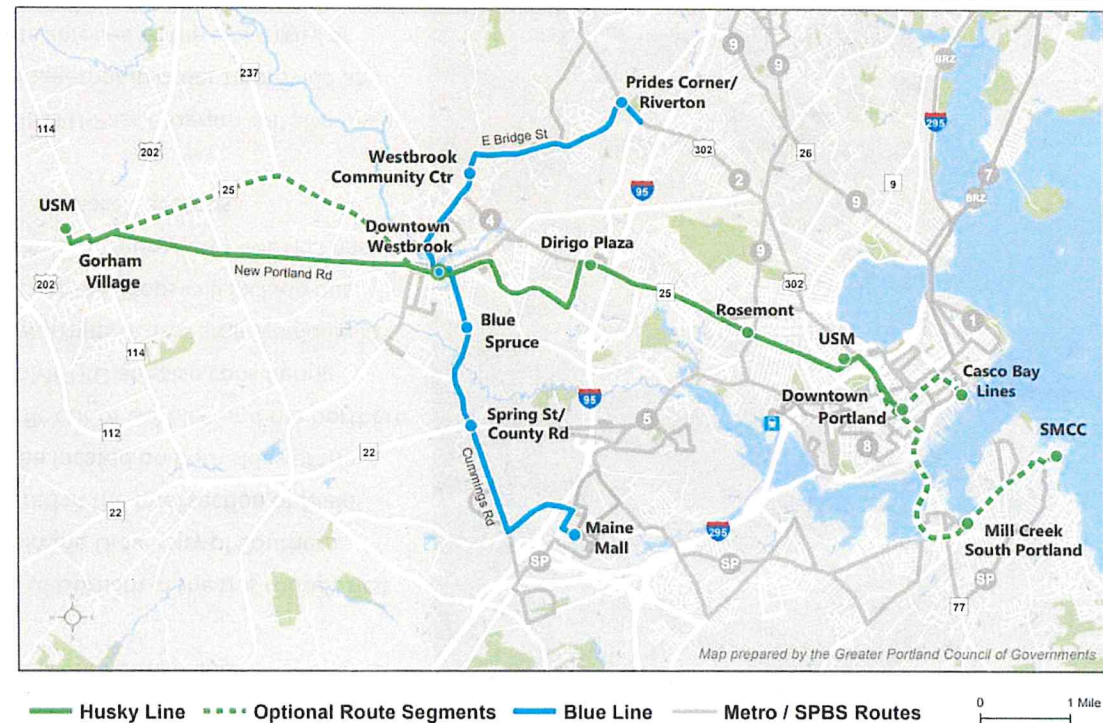


Figure 3.15: Proposed METRO West Expansion to Gorham

on METRO's Route 4. This popular and successful route provides a transit connection between Westbrook and Portland. The Husky Line will operate daytime transit service every 30 minutes to and from Gorham, creating a bus connection every 15 minutes in Westbrook where it will run in tandem with a restructured Route 4 line.

There are currently two stops planned for the Town of Gorham in the bus route's first implementation phase. One stop will be placed within the University of Southern Maine's Gorham Campus, and the other will be located at the intersection of Main Street and Water Street / Elm Street. Bus stops will be located on both sides of the road, with the Southern stop serving eastbound traffic out of Gorham and the northern stop serving westbound traffic into Gorham. Staff at METRO are also considering another stop for the Town of Gorham if the service warrants it. This stop would be in proximity to the intersection of Main Street and Chick Drive. Stops will include bus shelters, route information, and other basic amenities (see Figure 3.16). METRO has also stated that there is potential for bicycle racks to be placed at stops.

With the implementation of the Husky Line, a new USM U-Pass Program will also begin. Greater Portland METRO Bus and USM have worked together in order to provide an unlimited access transit pass program to the students enrolled at the University of Southern Maine. This transit pass will reach approximately 8,000 students and ensure a well utilized transit system from day one.

The team at METRO is working on a public-private partnership which would provide parking for those taking the bus from Gorham during phase one. During a later phase they also plan to search for an appropriate park-and-ride location to the West of the University of Southern Maine's Gorham Campus, which can serve as the route's first stop.



Figure 3.16: Example of a METRO bus stop complete with Bus Shelter



SECTION 4 – RECOMMENDATIONS

Having thoroughly evaluated bicycle and pedestrian assets in the village, the project team developed a series of recommendations to improve the transportation environment for the non-motorized user. This section describes the types of treatments considered and locations where they are recommended. These recommendations include the sidewalk plan documenting the inventory and assessment and establishing priority ranking for repair, replacement, and supplementing of the sidewalk network in the study area. Section 3 of this report includes a discussion of the purpose and methodology informing this dataset, which can be referenced in the Appendix. Lastly, this report includes specific recommendations relative to existing land use regulations and future development of a complete street ordinance.

4.1: BICYCLE & PEDESTRIAN RECOMMENDATIONS

The Bicycle and Pedestrian Recommendations have been organized into four Focus Areas: Main Street / State Street (Route 25), School Street / South Street (Route 114), New Portland Road, and Town Center Local Roads. Further, the report provides recommendations relative to specific roadway segments from intersections of each focus area. Sidewalk improvements noted in this section are also reflected in the sidewalk prioritization table, included in the back of the report.

FOCUS AREA 1: MAIN STREET / STATE STREET (ROUTE 25) - ROAD SEGMENTS

Route 25, known as Main Street east of Route 114 and State Street west of Route 114, is an important road both locally and regionally. What is clear is that pedestrian and bicycle accommodations are scarce and the corridor is very vehicle centered for good reason; it is a regional link in the National Highway System. Nonetheless, there is an established non-motorized demand that needs to be accommodated. Below, we break the corridor up into three segments and outline the recommendations for Route 25. See Figure 4.1, which illustrates the limits of the segments and outlines the recommendations.

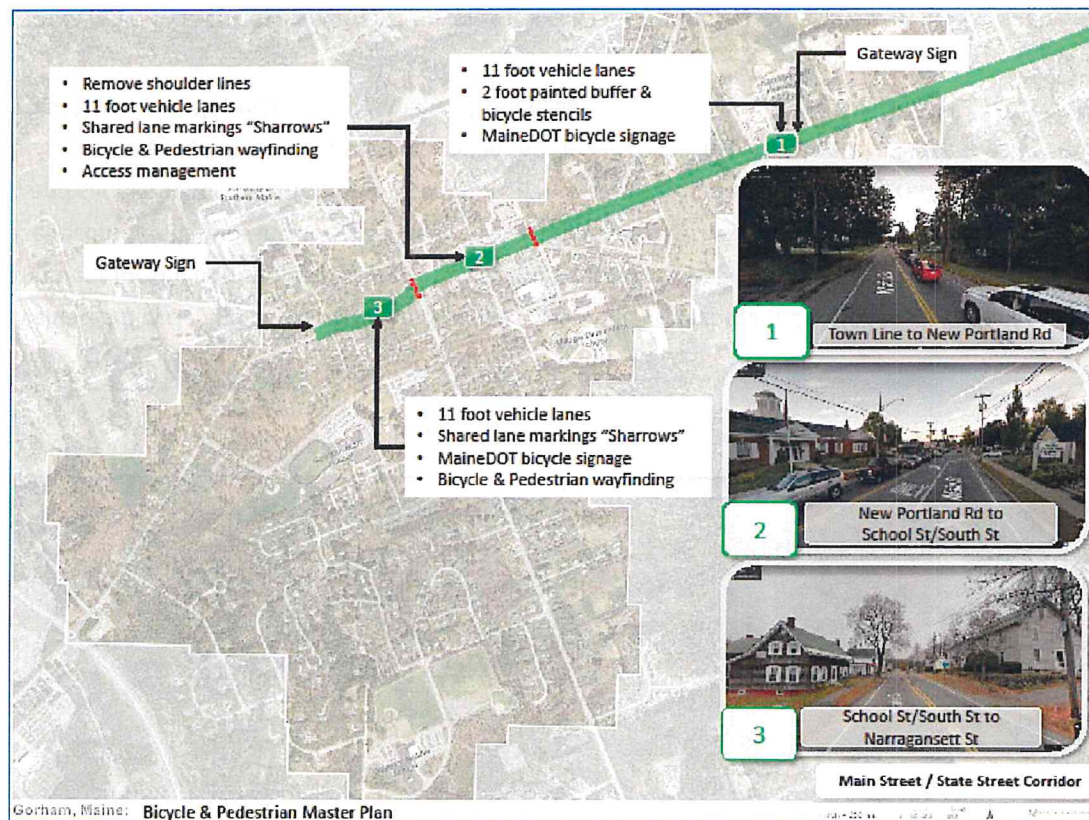


Figure 4.1: Main Street / State Street Corridors

Segment 1: Westbrook Town Line to New Portland Road

This important segment of the corridor links the Town of Gorham to the Town of Windham to its east, and it also provides access to the entrance of Narragansett School, one of Gorham's Elementary Schools. The area around Narragansett Elementary School was ranked as the highest area for pedestrian/walking concerns (with 24% choosing "Unsatisfied" or "Highly Unsatisfied") and the second highest area for bicycling concerns (with 24% choosing "Unsatisfied" or "Highly Unsatisfied") according to the data collected during the outreach survey.

Recommendations for this area include the installation of gateway signage and landscape elements to serve as a character-defining feature at the village arrival zones. The gateways alert drivers that they are entering a heightened zone of activity, thereby introducing a traffic calming measure reinforcing reduced speed limits. In some cases, it may be appropriate to reinforce speed limit reductions with an interactive speed radar feedback sign. A sample rendering of a gateway to the village on Main Street is shown in Figure 4.5 on the following page.

Signing and striping changes are recommended as measures to integrate bicycle facilities safely into the travel-way and reduce traffic speeds. The existing pavement can be repurposed by narrowing travel lanes to 11 feet to allow for installation of a 2-foot buffer strip between the travel lane and a new bike-friendly shoulder measuring a minimum of 5 feet wide. The lane should be marked accordingly with bike lane stencils and Supplemental bike signage should be installed, as shown in Figures 4.3 and 4.4 below.



Figure 4.3 (Left) and 4.4 (Right): LEFT - Maine DOT Bicycle Signage - W11-1; RIGHT - MaineDOT "3 feet min. to pass" signage

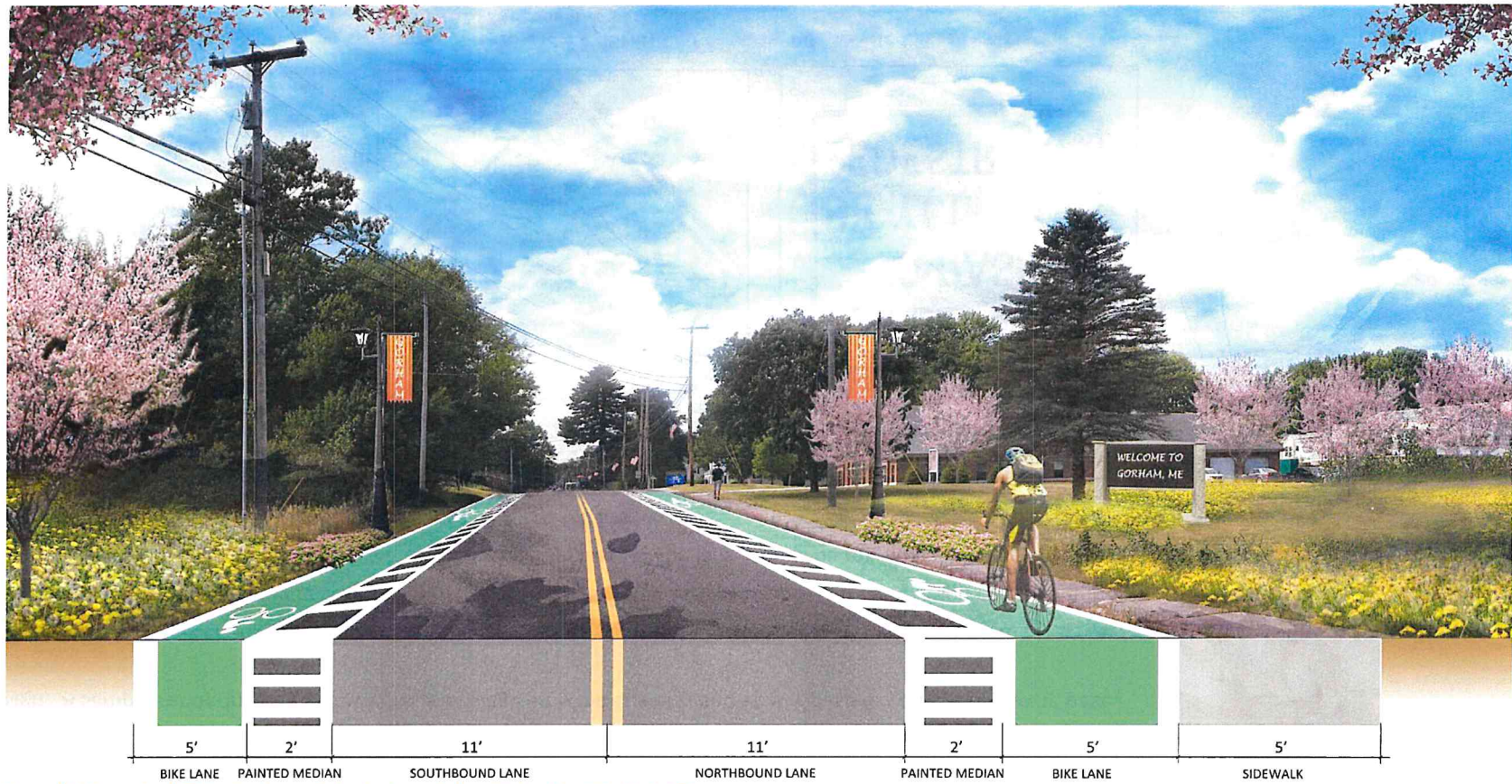


Figure 4.5: Example of Gateway signage to be implemented on each major entry to the Town.

Segment 2: New Portland Road to School Street / South Street

Lanes narrow as Main Street continues west through the center of Gorham. Bike lanes are not feasible in this stretch of road due to the existing width of pavement and tight right-of-way. This is also an area where most of the commercial activity exists; curb cuts are numerous, and in some cases ill planned; and crossing of Main Street is challenging.

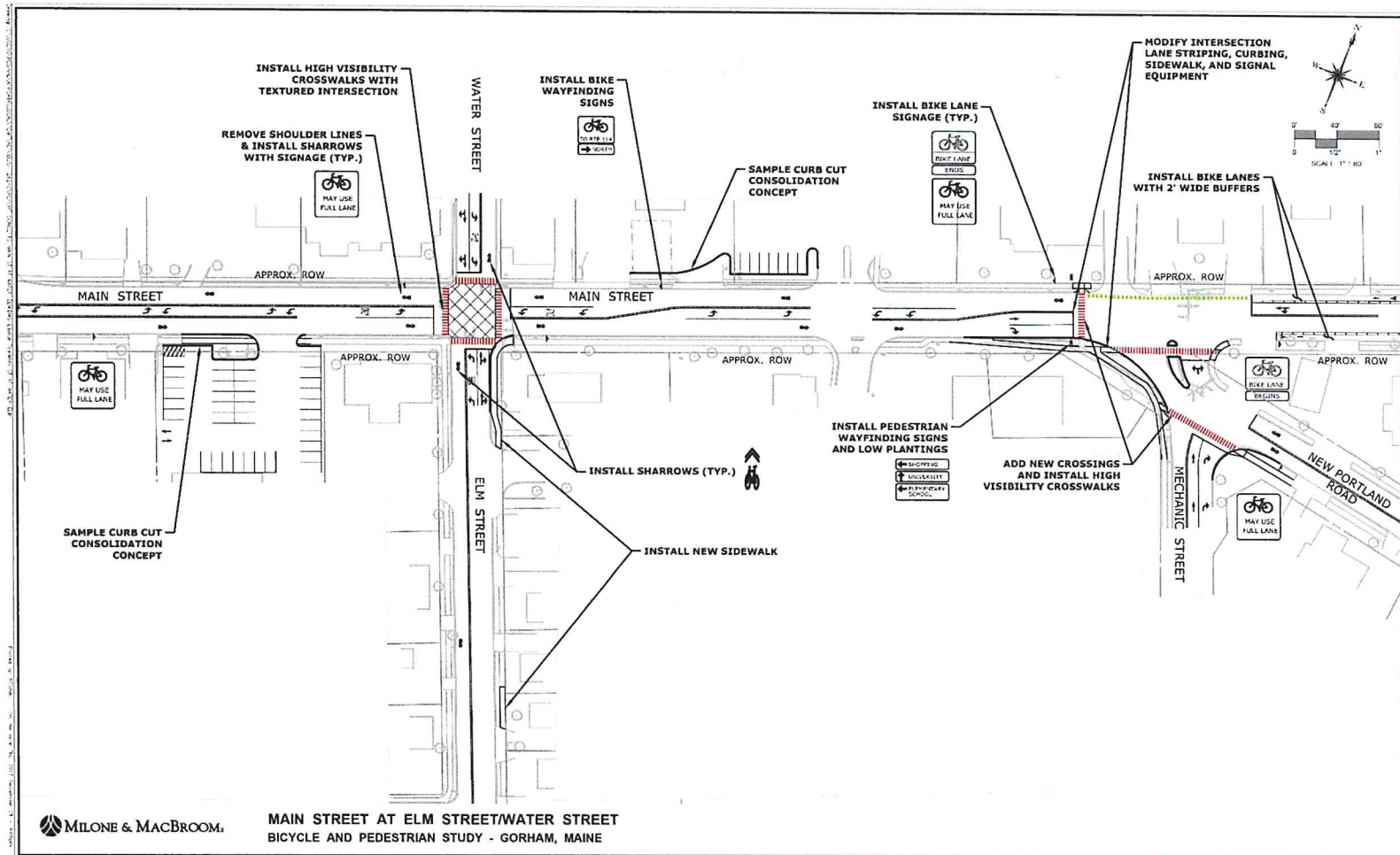


Figure 4.5 Concept plan showing improvements at along Main Street near Water Street / Elm Street and Main Street and New Portland Road / Mechanic Street.

Recommendations to address these deficiencies are illustrated in Figure 4.5. As shown, the width of the center turn lane is recommended to be 11 feet. That does not allow enough width to continue the bike lanes recommended east of New Portland Road. However, shared lane markings (a/k/a sharrows) and MaineDOT signage (The "3-feet min. to pass" signs shown in Figure 4.4) are recommended to help drivers and bicyclists alike be aware of each other and share the road. The sharrows should be located approximately at the center of the through travel lane to decrease maintenance concerns created by placement under car/truck wheels, which prematurely fade the markings. Removal of the shoulder lines is also recommended.

This area is also in need of access management, which can be easily accomplished by consolidating some of the driveways. One such strategy is depicted in Figure 4.5 on the north side of Route 25. These types of strategies typically require cooperation of private landowners or some type of incentive.

Segment 3: School Street / South Street to Narragansett Street

After crossing Route 114, Route 25 changes names to State Street. The area between Route 114 and the intersection of State Street and Narragansett Street quickly turns more residential and less commercial. Recommendations on this stretch of Route 25 include gateway signage like that described for westbound traffic into town. Since traffic eastbound will likely be somewhat faster, speed radar feedback signage (shown in Figure 4.6) is recommended as well to reinforce the change in context from arterial to village setting. This section of road should also feature 11-foot-wide travel lanes and available shoulder width would dictate use of sharrows and signage. Pedestrian- and bicyclist-level wayfinding signage is also suggested at the approach to Route 114.



Figure 4.6: Speed Radar Feedback Signage



Figure 4.7: Segment 3 includes many potential pedestrian and vehicular conflicts due the many driveways.

FOCUS AREA 1: MAIN STREET/STATE STREET (ROUTE 25) - INTERSECTIONS

Roadway segments and intersections lend themselves to different types of accommodations and treatments. For that reason, we have separated the mitigation narrative similarly. Below is a description of the mitigation proposed at intersections on Route 25 within the limits of this study area. Figure 4.8 provides a summary of the mitigation proposed by intersection.

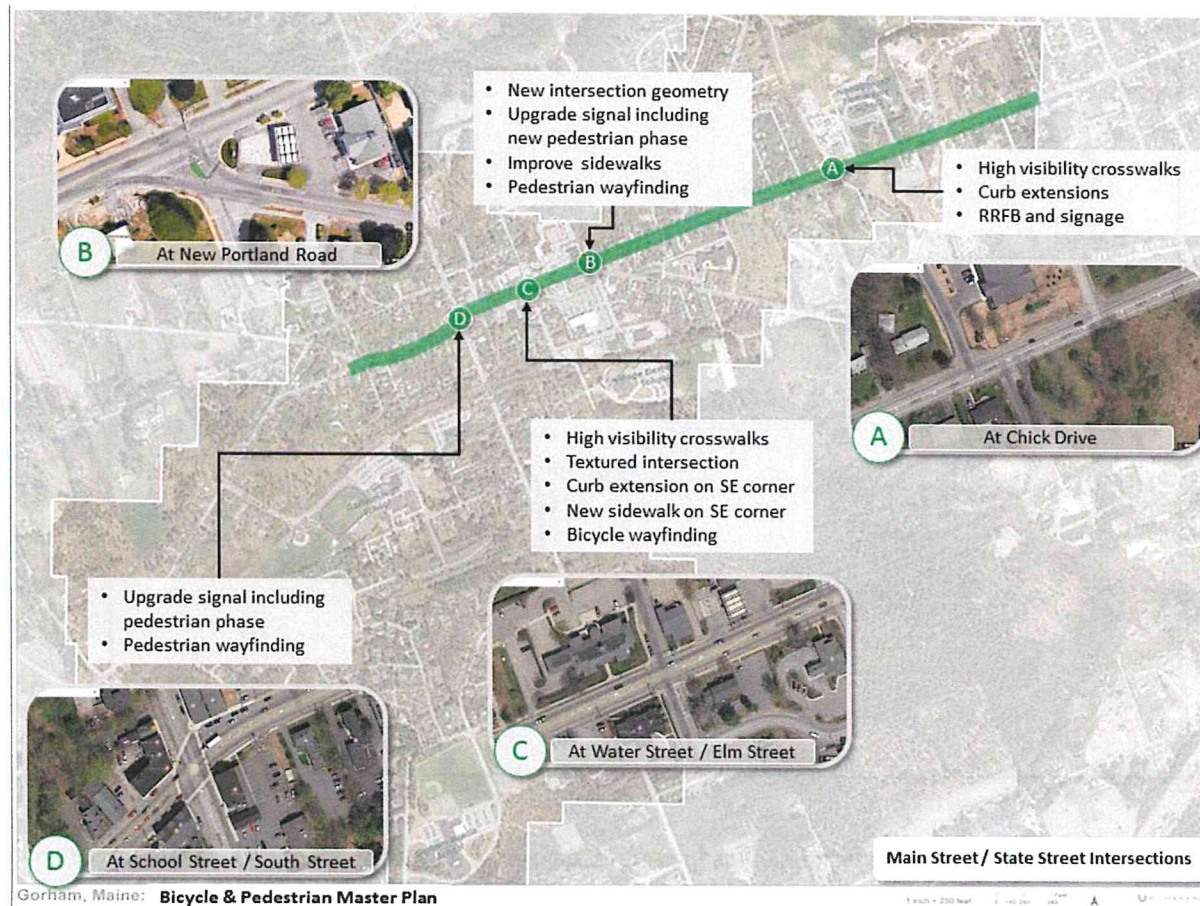


Figure 4.8: Main Street / State Street Intersections

Intersection A: Main Street / State Street at Chick Drive

This important intersection marks the entrance to the Narragansett Elementary School as well as the Gorham Police Station. The survey results ranked this area surrounding the Narragansett Elementary School the highest for pedestrian/walking concerns. Respondents scored the area high for bicycling concerns as well.

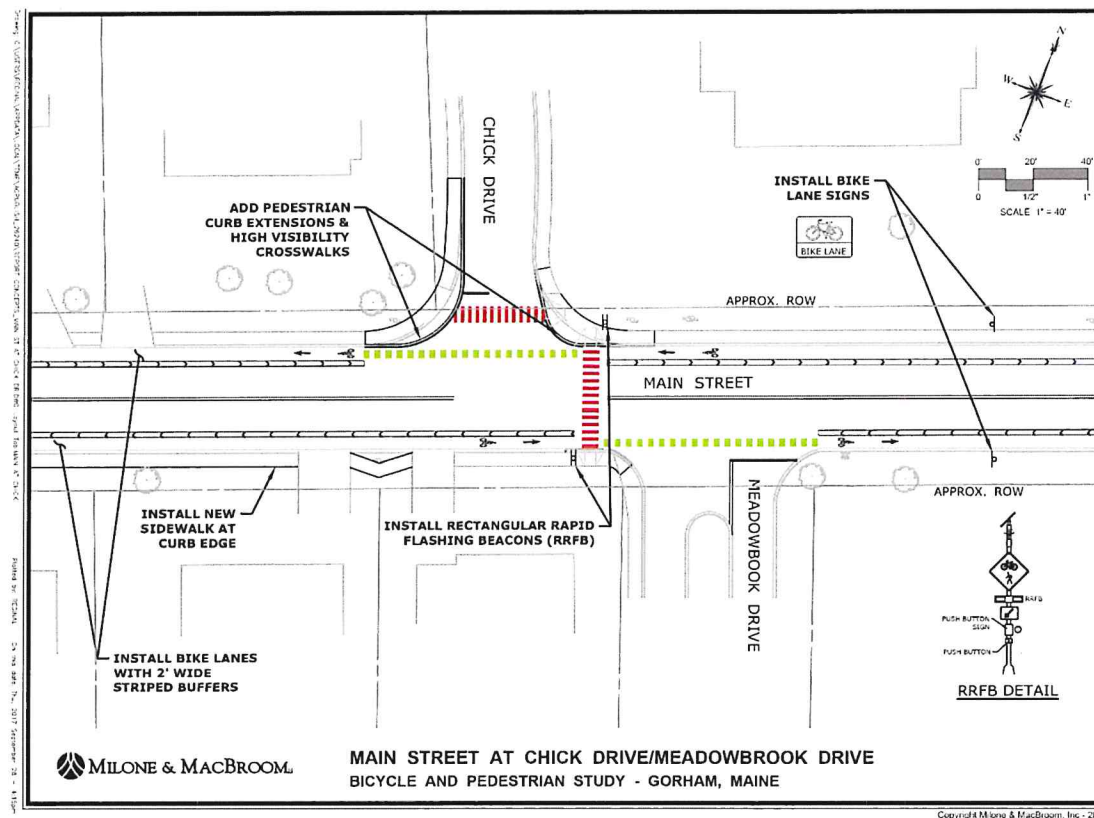


Figure 4.9 Concept plan showing intersection and roadway treatments near Chick Drive.

Recommendations to improve this intersection include the introductions of high-visibility crosswalks across Route 25 on the east side of the intersection and across Chick Lane. A small extension of the curbing here is also recommended to slightly shorten crossing distances. Pedestrian

warning signage and a Rectangular Rapid Flashing Beacon (RRFB) will boost the visibility and safety for pedestrians crossing here. There is also a section of sidewalk along the south side of Main Street that is critical to the pedestrian linkage to the village center. Figure 4.9 on the previous page shows how these improvements would integrate into the existing environs.

Intersection B: Main Street / State Street at New Portland Road

The New Portland Road/Main Street intersection is ranked number one for having the highest number of pedestrian/walking concerns according to the data obtained from the public survey. This intersection is the focus of not only this study but is also part of separate study and design efforts looking to improve it from safety and signal operation standpoints. Figure 4.5 summarizes these recommendations.

As illustrated in Figure 4.5, a significant geometric improvement is recommended. The improvement includes reducing the intersection footprint and introducing smaller radii to reduce speeds and shorten pedestrian crossing distances. Per the plan recommendations, the signal would be upgraded to add a new pedestrian phase and signal equipment upgrades for full ADA compliance. A new high visibility crosswalk would be installed along with improved sidewalk connections. Lastly, this is an area where some pedestrian-level wayfinding signage may be appropriate.



Figure 4.10: Intersection B: Main Street / State Street at New Portland Road

Intersection C: Main Street / State Street at Water Street / Elm Street

This intersection was ranked fifth for pedestrian/walking concerns (with 24% choosing "Unsatisfied" or "Highly Unsatisfied") and fourth for bicycling concerns (with 33% choosing "Unsatisfied" or "Highly Unsatisfied") in the Outreach Survey. This is a key pedestrian crossing due to its location in the middle of the commercialized portion of Main Street. For this reason, a fully textured intersection is recommended surrounded by high visibility crosswalks. These treatments provide for an extremely visible and safe pedestrian environment at the signalized intersection. In addition, curb extensions on the southeast corner and new sidewalks along the east side of Elm Street are recommended. This intersection is also the subject of the traffic signal improvements study along Main Street. As part of that, the signal is proposed to be upgraded to include improved pedestrian accommodations and ADA compliance.

New bicycle wayfinding signage is also proposed in this location. The intersection of Route 25 and Route 114 is not particularly bicycle friendly due to the generous geometry required to accommodate numerous turning movements, large trucks, on-street parking, and pedestrian facilities. For these reasons, an alternate bicycle route is warranted. Consequently, bicyclists oriented north or south on Route 114 from points east of Water Street/Elm Street will be directed either down Elm Street or up Water Street to Church Street to access Route 114, thus bypassing the Routes 25/114 intersection. Examples of the wayfinding/directional signage is shown in Figures 4.11 and 4.12.

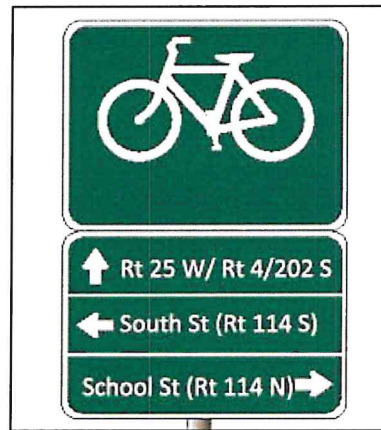


Figure 4.11: Bicycle Wayfinding Signage Example

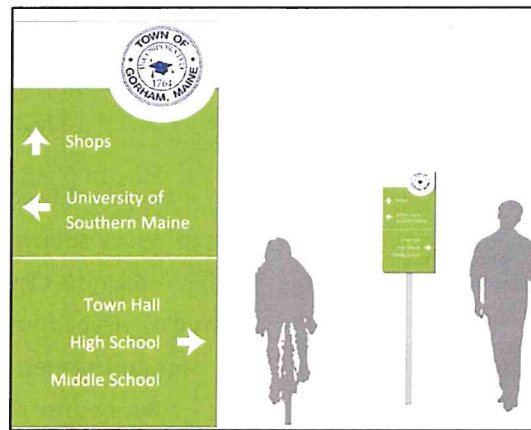


Figure 4.12: Bicycle and Pedestrian Wayfinding Signage Example

Intersection D: Main Street / State Street at School Street / South Street

This central intersection is often referred to as "the Square" among Town residents. Bordered by quaint shops which mark its corners, it already includes high visibility crosswalks, a pedestrian signal, and bollards at corners to protect pedestrians waiting to cross. Despite these safety features, this intersection had the second highest ranking for pedestrian/walking concerns according to the data obtained from the public survey. This intersection will be the beneficiary of traffic signal upgrades including minor improvements to crosswalk location and layout and upgrades to the pedestrian infrastructure and ADA compliance. These changes will enhance pedestrian safety and crossing comfort in the area. Due to its identity as a centralized crossroad in the village, pedestrian- and bicycle-level wayfinding signage is recommended for those approaching the intersection from all four directions. A sample of this pedestrian-level signage is illustrated above in Figure 4.12.

FOCUS AREA 2: SCHOOL STREET / SOUTH STREET (ROUTE 114) - ROAD SEGMENTS

Route 114 is known as South Street south of Route 25 and School Street north of Route 25. Fairly good pedestrian facilities exist within this segment, although some site-specific improvements are necessary. Bicycle amenities are scarce, but opportunities to improve the biking environment do exist.

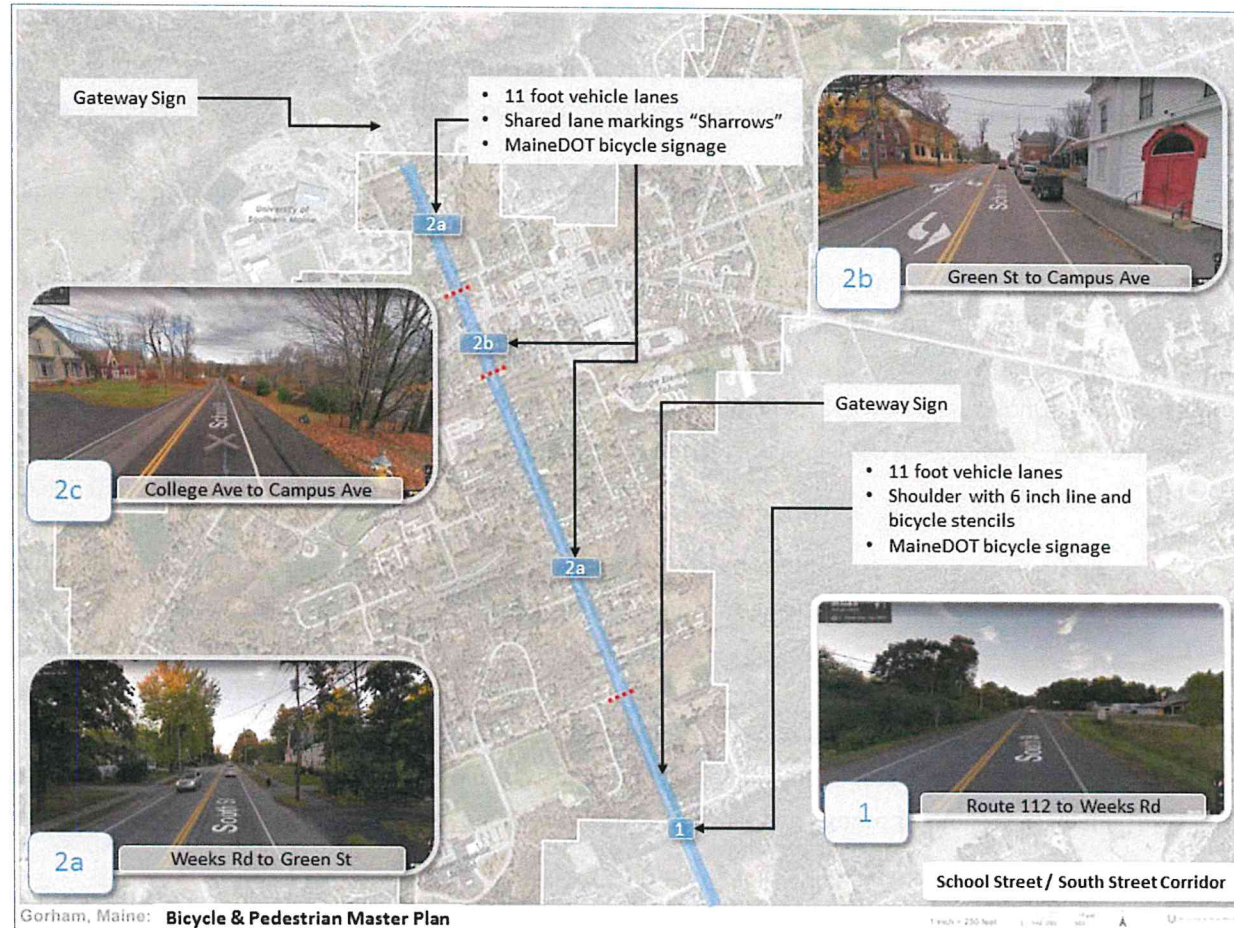


Figure 4.13: School Street / South Street (Route 114) Corridors

Recommendations for Route 114 follow. The School Street/South Street corridor has been segmented into four areas. The limits of each length of road and summary of recommendations is provided in Figure 4.13.

Segment 1: Route 114, from Route 112 to Weeks Road

This section of the Route 114 corridor leads into the Town of Gorham Village area from the south and sports generally wide vehicular lanes which induces higher vehicular speeds. Recommendations to reduce speeds and improve this segment of South Street for bicyclists are described below.

This plan recommends a reduction in lane widths from the roundabout at the intersection of Route 112 to Weeks Road. This allows maximum shoulders that typically exceed 5 feet. Since the width of Route 114 does not allow for a buffer area and formal bike lane, a slightly wider 6-inch shoulder line is proposed to separate the motor vehicle traffic from bicycle traffic. It is also recommended that bicycle lane stencils be incorporated on this section of Route 114 in addition to appropriate bicycle signage.

The bike lane as described would terminate at the signalized intersection of South Street with Green Street. South of that signalized intersection, another gateway treatment is proposed to mark the arrival to the Village Area of Gorham.

Segment 2: South Street at Weeks Road to School Street at Campus Avenue

Heading north, this corridor changes and narrows and is no longer able to support a bicycle lane on the shoulder. The area surrounding the University of Southern Maine's Gorham Campus, including South Street/School Street north of Main Street, was ranked fourth for pedestrian/walking concerns (with 15% choosing "Unsatisfied" or "Highly Unsatisfied") and first for bicycling concerns (with 25% choosing "Unsatisfied" or "Highly Unsatisfied") on the Outreach Survey. Between Green Street and Campus Avenue is perhaps the most congested section of road in the study area. It includes a mid-block crosswalk identified through signage and an RRFB and parking allowed along most of its length. This section is bifurcated by the central intersection of Route 114 at Route 25. Crosswalks are also present without the support of an RRFB across Route 114 at College Avenue and between Green Street and Preble Street, as well as between College Avenue and Church Street.

North of College Avenue is characterized by not only sporadic on-street parking areas, but also a significant vertical grade heading north from College Avenue toward Campus Avenue. This section of road once again becomes quite vehicle centric. Consequently, in the southbound direction just north of Campus Avenue, a gateway treatment is proposed. This gateway treatment should be supplemented with a radar speed feedback sign in the southbound direction.

FOCUS AREA 2 – SCHOOL STREET/SOUTH STREET (ROUTE 114) INTERSECTIONS

Several spot/intersection improvements are recommended on Route 114. These are summarized graphically in Figure 4.14. A description of these recommendations follows.

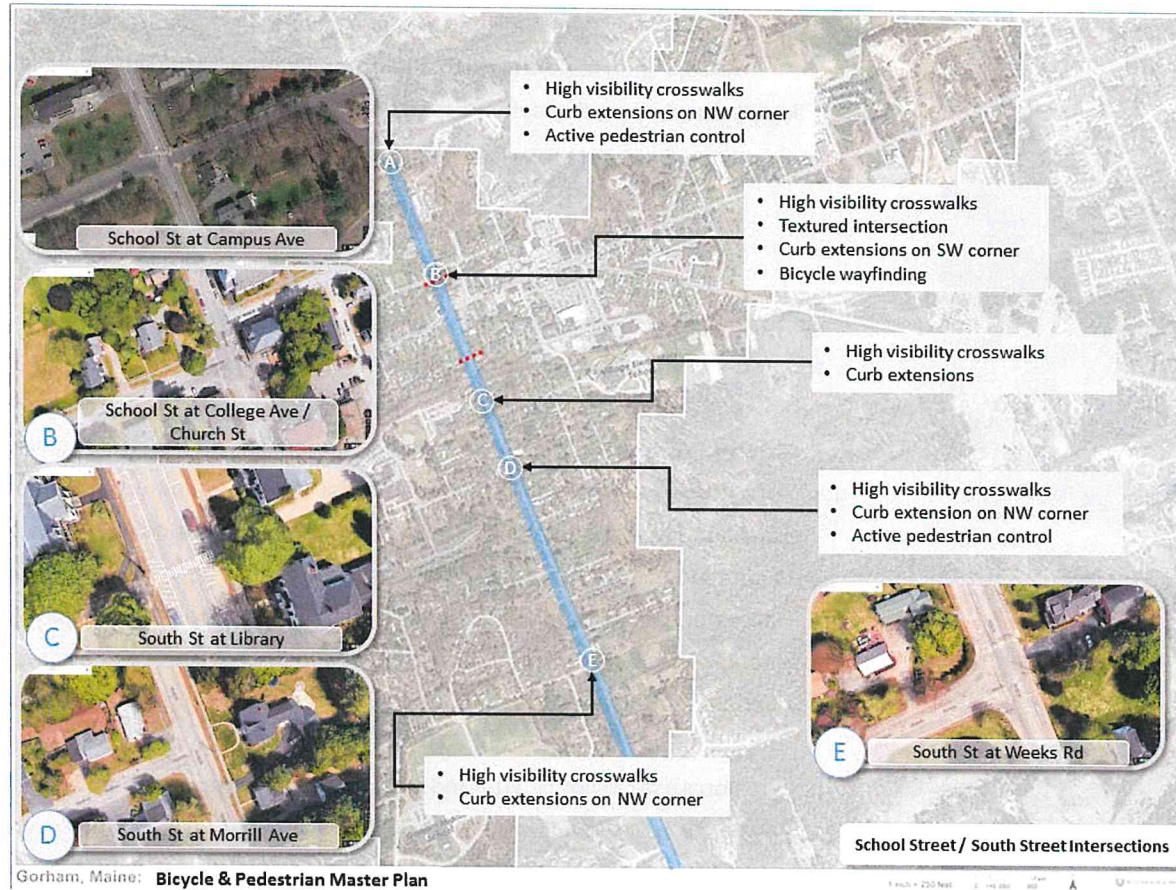


Figure 4.14: School Street / South Street (Route 114) Intersections

Intersection A: School Street / South Street at Campus Avenue

As School Street moves north away from the Gorham Village Center, traffic tends to speed up. The School Street at Campus Avenue Intersection ranked #3 for pedestrian/walking concerns in the Outreach Survey due to visibility and safety concerns crossing Route 114. The intersection includes overhead flashing signals, but their effectiveness is minimized because they are not user-activated, but rather flash constantly (see Figure 4.15). The signal equipment may have been installed as a warning to northbound traffic to ameliorate a potential visibility restriction.

The recommendations at this location focus on improving the safety of pedestrians crossing at this location. New high visibility crosswalks should be built in conjunction with a curb extension on the northwest corner of the intersection to shorten the pedestrian crossing and improve pedestrian visibility. In addition, the flashing beacons should be replaced with a more interactive treatment. The use of an RRFB would be consistent with their use elsewhere within the village, although signal visibility for northbound vehicles would need to be field tested. Vertical extension of the RRFB is one possible solution. The installation of a high intensity activated crosswalk device, commonly known as a HAWK signal, offers another solution. Because it is newer technology, the HAWK signal is not an accepted device by MaineDOT. However, its use could be pursued with them at this location. The advantage of HAWK is the higher vertical placement of the signal indications. A HAWK signal installation is shown in Figure 4.16.

Intersection B: School Street / South Street at College Avenue / Church Street

Although this intersection includes a pedestrian crossing, its design results in a long angular crossing. Recommendations to improve this intersection include replacing existing and adding new high visibility crosswalks. The entire intersection should be textured as well, clearly identifying this as a high pedestrian area. Bicycle wayfinding signage would also be provided here, blazing a preferred route to Route 25 East.



Figure 4.15: Intersection A - School Street / South Street at Campus Avenue intersection with overhead flashing



Figure 4.16: Hawk Signal, Photo Source: NACTO.



Figure 4.17: Intersection C - Street / South Street at Library (Mid-Block Crossing)



Figure 4.18: Intersection E - School Street / South Street at Weeks Road

Intersection C: School Street / South Street at Library (Mid-Block Crossing)

Recently redesigned, this mid-block crossing includes an RRFB, a crosswalk and high visibility signage (see Figure 4.17). However, the proximity of parked cars to the intersection obstructs the views between motorists and pedestrians. It is a key crossing area, leading pedestrians between Town Hall and the high school to the west and the Village Elementary School and shopping areas to the east. When ranked in the Outreach Survey, this intersection was sixth for pedestrian/walking concerns (with only 9% choosing "Unsatisfied" or "Highly Unsatisfied") and fifth for bicycling concerns (with only 18% choosing "Unsatisfied" or "Highly Unsatisfied"). The recommendations to improve this mid-block crossing including curb extensions to mitigate the visibility constraints as well as replacing the existing white bar painted crosswalk with one constructed of high visibility materials.

Intersection D: School Street / South Street at Morrill Avenue

This is another important intersection for pedestrians providing access to the Gorham High School to/from residential areas to the east. Feedback from the Outreach Survey ranked this intersection as fourth for pedestrian/walking concerns (with 25% choosing "Unsatisfied" or "Highly Unsatisfied") and fifth for bicycling concerns (with 34% choosing "Unsatisfied" or "Highly Unsatisfied"). To improve bicycle and pedestrian safety, installation of a high visibility crosswalk on South Street at the north side of the intersection and add a curb extension on the northwest corner to shorten the crossing distance is recommended. Proper state signage should supplement this crossing. An RRFB would be a more active signal option but may not be needed since this crossing is not mid-block and located within a section of South Street where speeds are generally slower.

INTERSECTION E: School Street / South Street at Weeks Road

This intersection on the edge of the Gorham Village Area provides access to the Gorham Middle School. Recommendations to improve this intersection include replacing the crosswalk across South Street with a high visibility crosswalk and adding a curb extension on the northwest corner to shorten the pedestrian crossing distance.

FOCUS AREA 3: NEW PORTLAND ROAD – ROAD SEGMENTS AND INTERSECTIONS

Leading southeast out of the Gorham Village Area, New Portland Road quickly transforms from a small town semi-suburban road to a rural corridor. Bicycle and pedestrian amenities are important along this corridor since the future New Portland Road will serve as an important connection to the Crosstown Trail, which will traverse the corridor south of the White Birch Lane intersection. Figure 4.19 illustrates the road segment studies and a summary of recommendations.

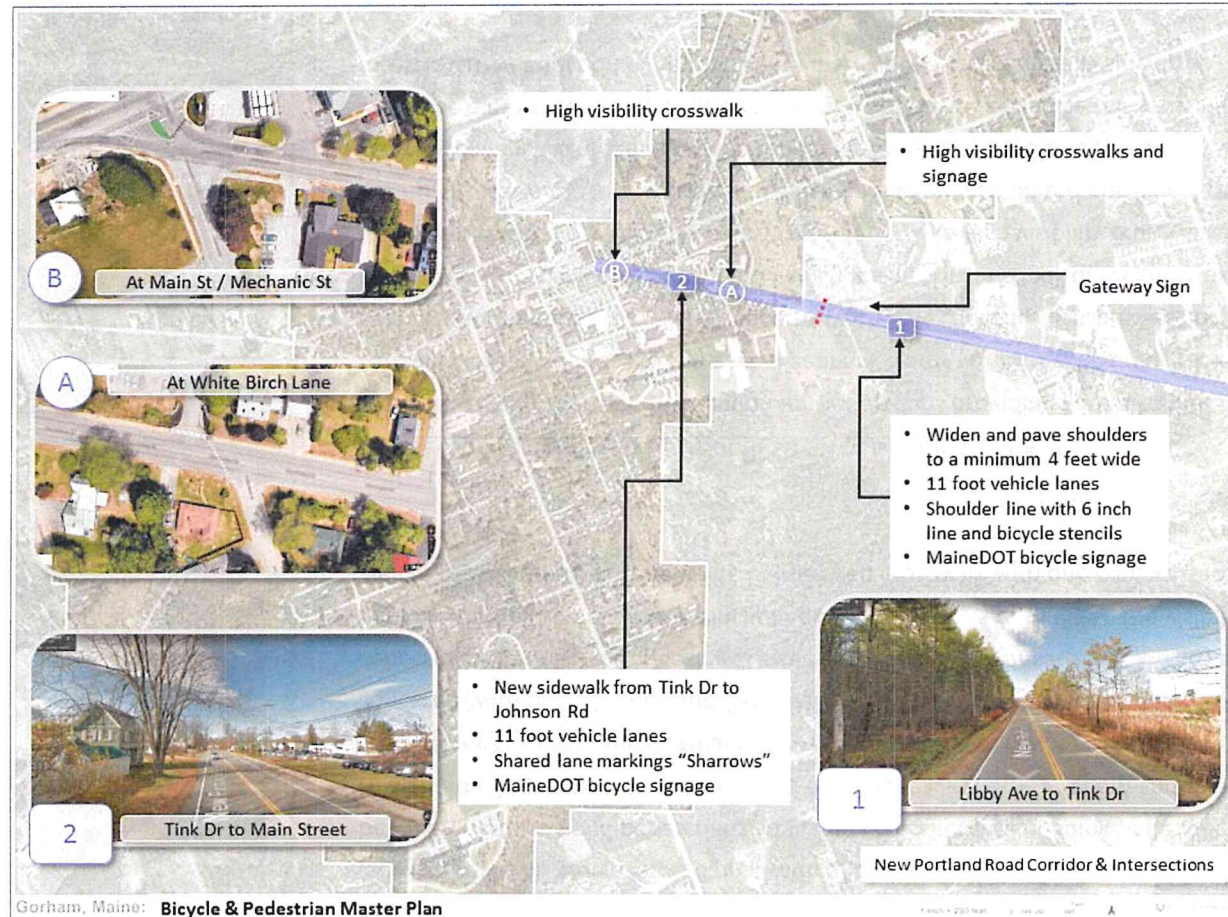


Figure 4.19: New Portland Road Corridors & Intersections

Segment 1: Libby Avenue to Tink Drive

This portion of the New Portland Road corridor is rural and has no pedestrian or bicycle amenities. Recommendations to improve conditions for pedestrians and bicyclists along the corridor include reducing travel lanes to 11 feet wide and improving the shoulders to provide a minimum 4' shoulder for the length of this segment. The shoulder lane should be widened to 6 inches and bike lane stencils and MaineDOT Bicycle signage W11-1 installed. Additionally, suggested gateway signage for vehicles heading west should be located just east of the crosstown trail crossing.

Segment 2: Tink Drive to Main Street

As New Portland Road approaches the Gorham Village Area it becomes more suburban and has a narrower cross section. This means that bicycle lanes are no longer possible. This portion of the road does include a sidewalk on the northern side which ends at Johnson Road. Recommendations in this area include a new sidewalk from Tink Drive to Johnson Road to close the sidewalk gap on the north side of the road. Additionally, we recommend narrowing of the travel lanes to 11 feet and providing shared lane markings "sharrows" and MaineDOT Bicycle Signage "State Law 3 ft Min to Pass Bicycles of Pedestrians."

Intersection A: New Portland Road at White Birch Lane

At this off-set intersection, there is a diagonal crosswalk today from the Gorham House driveway to White Birch Lane. It is recommended that the existing crosswalk be replaced and relocated. Specifically, the easterly end should be shifted south to create a perpendicular, shorter pedestrian crossing distance.

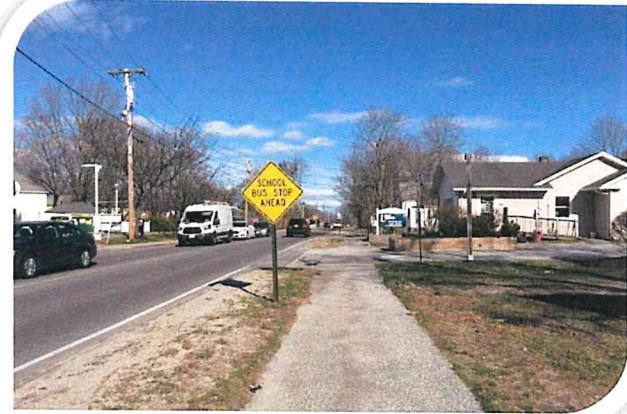


Figure 4.20: Segment 2 – New Portland Road from Tink Drive to Main Street



Figure 4.21: Intersection A – New Portland Road at White Birch Lane

FOCUS AREA 4: TOWN CENTER LOCAL STREETS – ROAD SEGMENTS AND INTERSECTIONS

Area 4 includes many local streets that provide important access to some of the Town's most important amenities east of School Street / South Street (Route 114), including two main shopping centers and the Village Elementary School. Unquestionably, the largest concern in the area based on the public outreach feedback was the Village Elementary School Area, which respondents of the Outreach Survey ranked as their second highest area for pedestrian/walking concerns (with 21% choosing "Unsatisfied" or "Highly Unsatisfied") and the third highest area for bicycling concerns (with 22% choosing "Unsatisfied" or "Highly Unsatisfied"). Shown geographically are the individual road segments and intersections where recommendations were made. A description of the recommendations follows, and the segment and intersection key and summary of recommendations is provided in Figure 4.22.

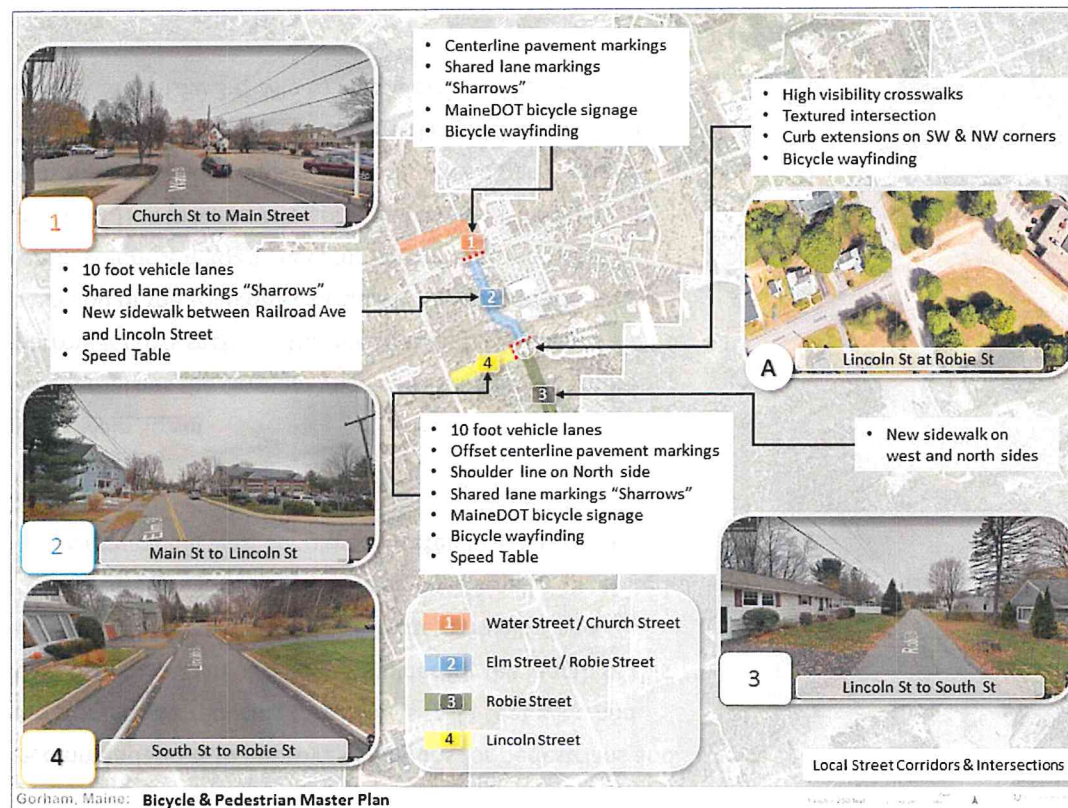


Figure 4.22: Segments & Intersections - Town Center Local Streets

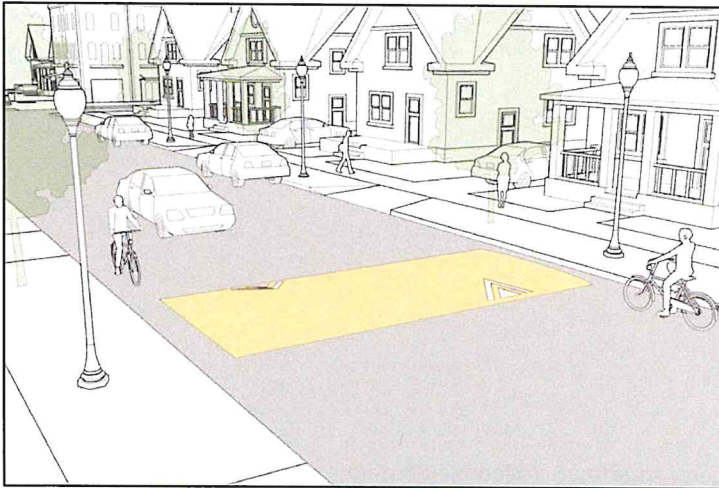


Figure 4.23: Speed Table Traffic Calming Treatment, Photo Source: NACTO



Figure 4.24: Segment 4 – Lincoln Street from South Street to Robie Street

Segment 1: Water Street / Church Street from Main Street to School Street

Recommendations here are primarily intended to assist bicyclists with bypass of the Route 25 and Route 114 intersection. Most importantly, the City should add within the right-of-way, new centerline pavement markings and shared lane markings or "Sharrows" supplemented with MaineDOT Bicycle Signage "State Law 3ft Min to Pass Bicycles of Pedestrians". At either end, bicycle wayfinding signage is recommended as discussed earlier.

Segment 2: Elm Street / Robie Street from Main Street to Lincoln Street

This important section of road provides connections to the Village Elementary School as well as the area's shopping plazas. In addition to having a painted, instead of paved, sidewalk through a portion of this area, vehicular speeding was cited as a concern. Recommendations to address these issues include reducing lane widths to 10 feet and adding shared lane markings or "Sharrows" and sharrow signage to the road. A new sidewalk between Railroad Avenue and Lincoln Street should also be constructed to replace the painted on-road pedestrian path. Lastly, since this is part of a detour often used to bypass the Routes 114/25 intersection, a speed table is recommended to discourage use of this alternate route by motor vehicles. A typical speed table is illustrated in Figure 4.23.

Segment 3: Robie Street from Lincoln Street to South Street

Robie Street is an important access point to the Village Elementary School from nearby neighborhoods. However, currently it does not have a sidewalk. A new sidewalk on the west and north sides of Robie Street should be considered.

Segment 4: Lincoln Street from South Street to Robie Street

Another important access point to the Village Elementary School, Lincoln Street currently has a sidewalk on the north side. But due to a lack of separation from vehicular traffic, it is perceived as uncomfortable (see Figure 4.24 on the previous page). Recommendations to address concerns, calm traffic, and minimize the use of Lincoln Street as a cut through are as follows:

- * Add a slightly offset centerline.
- * Provide a shoulder line on the north side 10 feet off of the centerline.
- * Add shared lane markings or "Sharrows" and MaineDOT Bicycle Signage "State Law 3ft Min to Pass Bicycles of Pedestrians."
- * Provide bicycle wayfinding signage to bypass the Routes 114/25 intersection as discussed.
- * Install a speed table to reduce speeds and make the use of Lincoln Street as a shortcut less desirable.

Intersection A: Lincoln Street at Robie Street

This important intersection is at the entrance to the Village Elementary School. Recommendations to establish that pedestrian safety is paramount include the installation of high visibility crosswalks surrounding a textured intersection. Curb extension on southwest and northwest corners should be constructed, as practical, without affecting bus operations. Lastly, bicycle wayfinding signage to aid in Route 114 / Route 25 intersection bypass is recommended (see Figure 4.25 on the next page). Reference the following page for the concept plan showing these improvements.

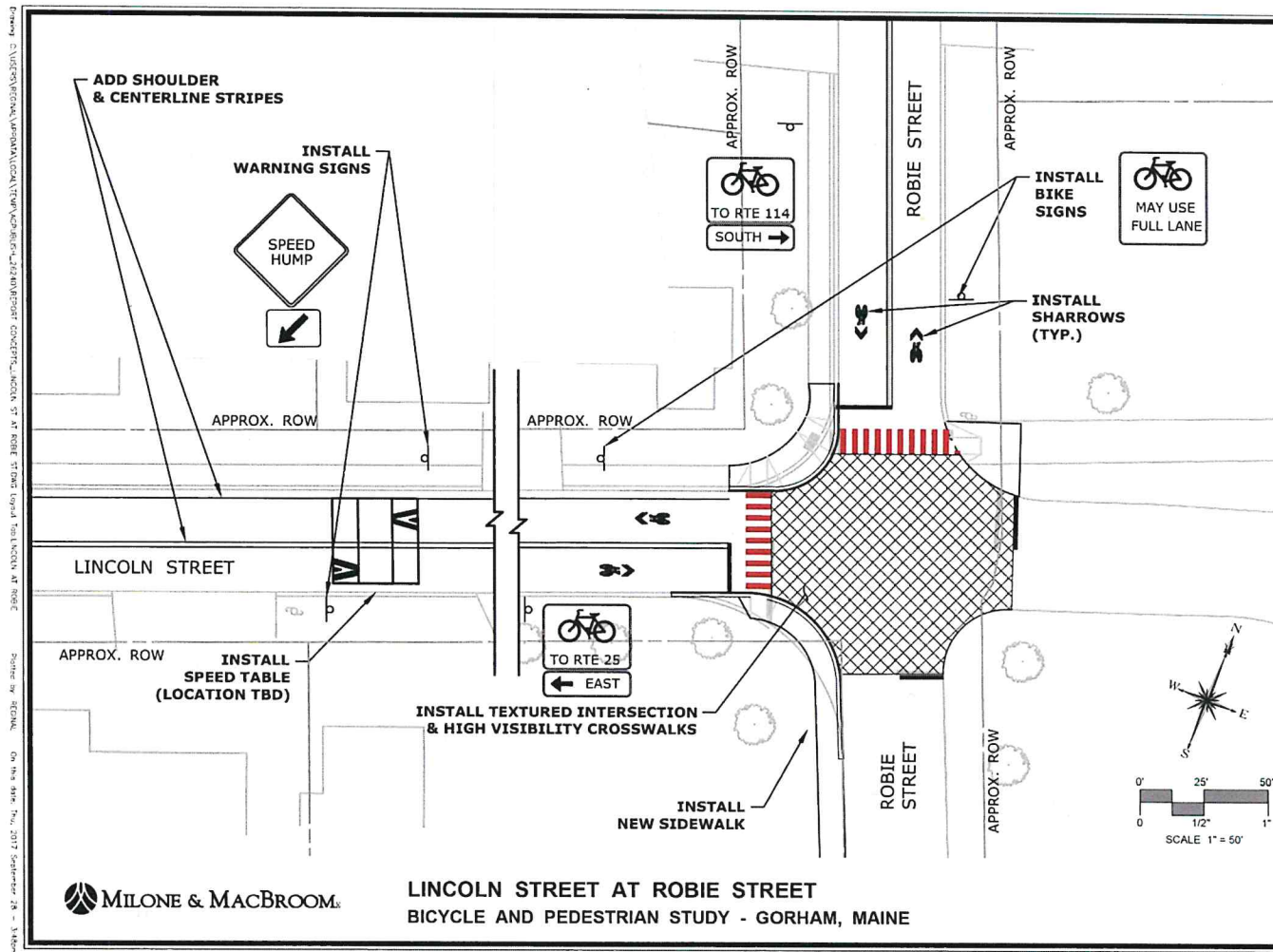


Figure 4.25 Concept showing bicycle and pedestrian improvements along Lincoln Street and at the intersection with Robie Street.

FOCUS AREA 5: SEGMENTS AND INTERSECTIONS - OUTER LOCAL STREETS

The final area is a collection of streets not intrinsic to the village area but nonetheless important pedestrian areas. These are shown in Figure 4.26 with a summary of recommendations.

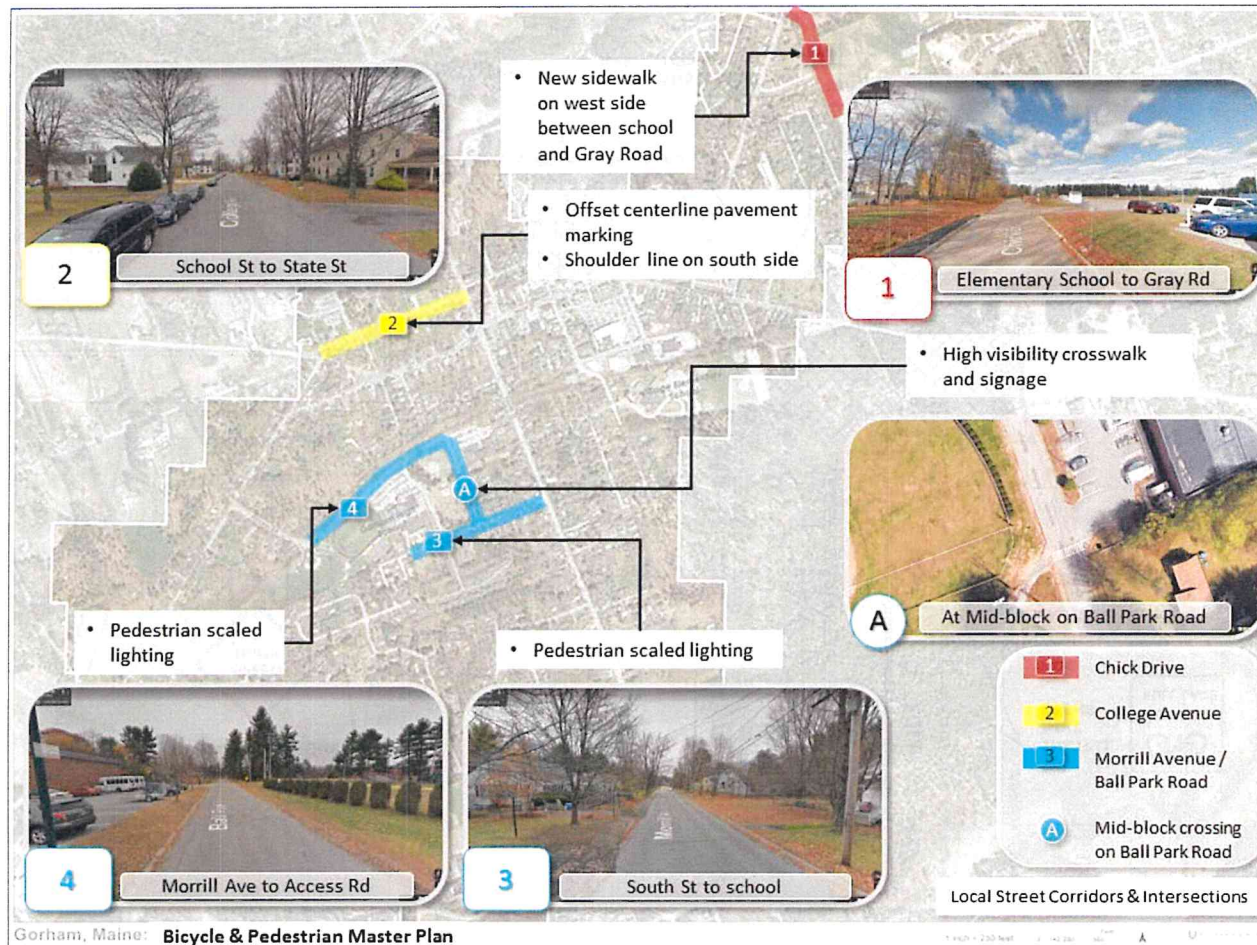


Figure 4.26: Segments & Intersections – Outer Local Streets



Figure 4.27: Segment 2 – College Avenue from School Street to State Street



Figure 4.28: Intersection A – Mid-Block Crossing at Ball Park Road

Segment 1: Chick Drive From Narragansett Elementary School to Gray Road

This road provides access to Narragansett Elementary School from areas north of Main Street (Route 25). There is no sidewalk north of the school driveway, resulting in a critical gap in pedestrian connectivity. A new sidewalk on the west side between school driveway and Gray Road should be installed.

Segment 2: College Avenue from School Street to State Street

This road provides access to the University of Southern Maine from the heart of Gorham Village. Currently, there sidewalks are limited to the north side of the street. Very wide vehicular lanes in this area contribute to vehicular speeding. To address these issues, offset the roadway centerline pavement marking and add a shoulder line on the south side of the road to provide a narrower travel way and traffic calming (see Figure 4.27).

Segments 3 and 4: Morrill Avenue / Ball Park Road

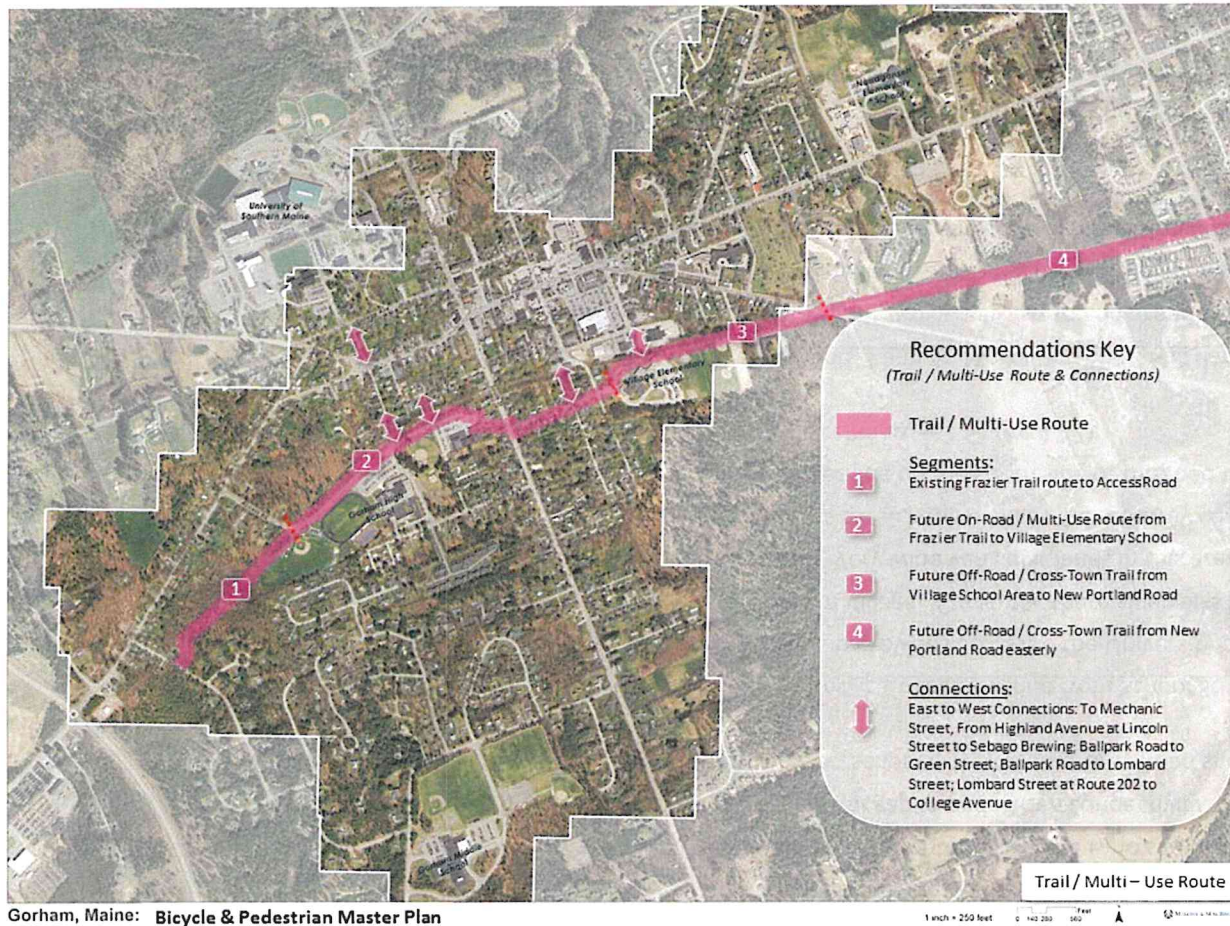
These roads provide access to and around Gorham High School and Town Hall. There are sidewalks present, and the area is relatively friendly to pedestrians and bicyclists. Pedestrian-scale lighting is recommended to address seasonal low-light conditions.

Intersection A: Mid-Block Crossing at Ball Park Road

The crosswalk should be replaced with a high visibility crosswalk at this mid-block crossing, which is used by pedestrians moving between areas east of Town Hall, the high school.

FOCUS AREA 6: MULTI-USE TRAILS

The town's trail system and analysis segments are shown in Figure 4.29. Links to the trail system, as shown, reference prior studies and outreach with a range of stakeholders and citizens, from avid off-road cyclists and school children. The network illustrated below summarizes the critical links to improve connectivity. The City is currently planning a number of trail expansion projects, including a critical portion of the Cross-Town Trail.



Gorham, Maine: Bicycle & Pedestrian Master Plan

Figure 4.29: Focus Area 6 – Multi-Use Trails

Frazier Trail

The off-road Frazier Trail offers a safe connection between Teran Street and the Access Road to the Baxter Library. It is currently usable by hybrid or mountain bikes or pedestrians, but it is not generally suitable for narrow tire road bikes.

The Cross Town Trail

The Cross Town Trail Corridor is accessible off New Portland Road. It is currently in a largely undeveloped state. There is debris in the corridor, including trash and plant growth, and the trail bed is uneven and eventually too wet to use about ¼ mile in. It is currently not suitable for use as an official public route.

BLOS F Extremely Low—Expert Estimation Only. Usable by skilled trail riders only.

4.2: TRANSIT RECOMMENDATIONS

Transit access is crucial to creating a truly multi-modal and accessible Gorham Village Area. Therefore, the following recommendations were developed in coordination with METRO's new Husky bus line (discussed in Section 3.4).

SHORT TERM RECOMMENDATIONS (WITH METRO'S 2018 HUSKY LINE IMPLEMENTATION)

Coordination

- * The Town of Gorham, and other relevant stakeholders, should work closely with METRO throughout the planning and implementation phases of the new Husky Line to ensure it meets the needs of Gorham residents.

Recommended Bus Stop Facilities

- * All relevant route and bus system information
- * Pedestrian and Bicycle Wayfinding Signage
- * Bicycle parking facilities
- * Pedestrian scaled lighting
- * Amenities, including: Bus shelters, benches, and trash receptacles

Accessibility

- * All bus stop locations should be ADA, pedestrian, and bicycle accessible
- * Bus stops should be located in proximity to a safe pedestrian crossing facility

LONG TERM RECOMMENDATIONS (FOR FUTURE TRANSIT EXPANSION)

Parking

- * For small commuter Towns like Gorham the key to a well utilized transit system is often the implementation of a park-and-ride facility. Therefore, it is recommended that a park-and-ride facility be considered for the future.

Ridership Growth Strategies

- * The Town should consider various ridership growth strategies, like reduced fares for Town employees, marketing campaigns, and more, in order to increase ridership and use of the Transit system.

4.3: LAND USE RECOMMENDATIONS

The Gorham, ME Land Use and Development Code encompasses the Town's Zoning Regulations, General Standards of Performance, Subdivision Regulations, Site Plan Review, and other regulations. The Land Use and Development Code has several provisions that relate to pedestrian and bicycle infrastructure.

ZONING REGULATIONS

Incentive zoning is a tool that many communities use to meet policy objectives by granting developers more lenient regulations (such as reduced parking requirements or greater density) in exchange for making desired public improvements (bicycle parking, larger sidewalks, shared parking areas, etc.).

Gorham currently offers incentive zoning for developers who incorporate bike paths and greenway systems into new developments within the Narragansett Development District. The purpose of this district is to promote innovative and attractive commercial development which complements Gorham Village, with an emphasis on "good quality commercial, light industrial, and specialty enterprises which produce sustainable growth in the economic base and job opportunities." The incentive bonus for this zone is a five percent (5%) density bonus above the allowable base density for "Providing for convenient and safe pedestrian and bicycle access to and within the development".

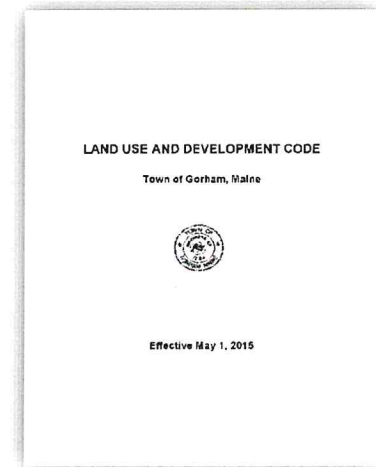


Figure 4.30 Gorham Land Use Code

The Narragansett Development District is just outside of the Pedestrian and Bike Study area, to the southwest on Route 202. Recommendations to further encourage more pedestrian and bicycle improvements include broadening this existing incentive as follows:

- * Expand the density bonus to all zones which currently require sidewalks (Village Center, Urban Commercial, Commercial Office, Office Residential, and Urban Residential Districts, and for all subdivisions located within the Development Transfer Overlay District that conform to the overlay district requirements).
- * Alternatively, create an overlay district along routes where it is practicable and desirable to have more pedestrian and bicycle infrastructure and amenities, such as a "Safe Routes to School" overlay along major routes to schools.
- * Emphasize and encourage connections with adjacent properties that contribute to the sidewalk and bicycle network as a whole.

- * Define design standards for "pedestrian and bicycle access", such as location and size of sidewalks or bike paths.
- * Allow for the provision of infrastructure and amenities, such as bike storage, sidewalk furniture, or increased lighting, to count towards a greater density bonus, potentially on a sliding scale.

GENERAL STANDARDS OF PERFORMANCE

Chapter 4 of the Land Use and Development Code addresses requirements and procedures for non-residential developments to address specific site concerns. Currently, site plan approval criteria and standards for developments in the village area require the integration of pedestrian circulation, including connections to the sidewalk network. Following are recommendations to further encourage more pedestrian and bicycle improvements:

- * Expand the current requirement to "Pedestrian and Bicycle Circulation".
- * Require (or providing incentives for) the inclusion of pedestrian and bicycle infrastructure, such as benches or bike storage.
- * Including traffic calming features, such as crosswalk bump-outs, to balance pedestrian safety with vehicular speeds and volumes where appropriate.



Figure 4.31 Bicycles parked on a typical bicycle rack. Image via pexels.com.

SITE PLAN REVIEW

Chapter 4 of the Land Use and Development Code addresses requirements and procedures for non-residential developments to address specific site concerns. Currently, pedestrian circulation is an element of the approval criteria and standards, and also requires connections to the sidewalk network for developments within a village area. Following are recommendations to further encourage more pedestrian and bicycle improvements:

- * Expand the current requirement to "Pedestrian and Bicycle Circulation".
- * Require (or providing incentives for) the inclusion of pedestrian and bicycle infrastructure, such as benches or bike storage.

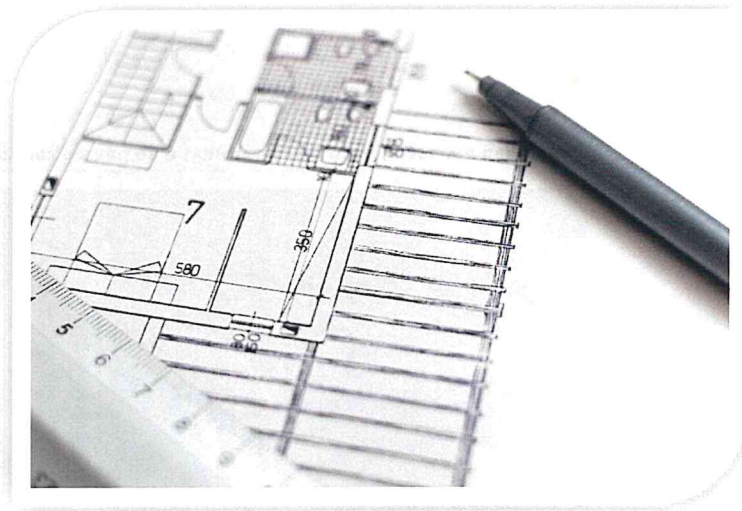


Figure 4.32 Site Plan Review typical documents

COMPLETE STREETS ORDINANCE

Complete Streets is a policy and design approach to allow for safe access and travel for pedestrians, bicyclists, drivers, and riders on public transit. Complete Streets policies direct transportation right of ways to be designed and developed for all users. Design elements of a Complete Street may include:

- * Sidewalks and sidewalk amenities such as benches for pedestrians
- * Bike lanes or wide paved shoulders, as well as other infrastructure such as bike storage, for bicyclists
- * Dedicated bus lanes
- * Comfortable and accessible transit stops

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APPENDIX 1 SIDEWALK ASSESSMENT AND WORK PLAN DATABASE

Gorham Sidewalks - Listing of all sidewalks by Street name with cost estimates

AssetID	Street	SHAPE_Leng	Material	Priority	New	Condition	CostNewFederal	CostNewLocal	CostRehabFederal	CostRehabLocal	Concrete
161	Access	735	Pavement	3	0	2	\$ 84,490	\$ 44,082	\$ 66,123	\$ 36,735	\$ 102,858
162	Access	284	Pavement	3	0	2	\$ 32,649	\$ 17,034	\$ 25,551	\$ 14,195	\$ 39,747
142	Access Rd	414	Concrete	3	0	1	\$ 47,639	\$ 24,855	\$ 37,283	\$ 20,713	\$ 57,995
36	Adeline Dr	466	Pavement	3	0	2	\$ 53,543	\$ 27,936	\$ 41,903	\$ 23,280	\$ 65,183
40	Adeline Dr	1692	Pavement	3	0	1	\$ 194,632	\$ 101,547	\$ 152,320	\$ 84,622	\$ 236,943
110	Ball Park Rd	497	Pavement	3	0	2	\$ 57,166	\$ 29,826	\$ 44,739	\$ 24,855	\$ 69,593
158	Belmont Ter	183	Pavement	3	0	1	\$ 21,097	\$ 11,007	\$ 16,511	\$ 9,173	\$ 25,684
159	Belmont Ter	425	Pavement	3	0	1	\$ 48,870	\$ 25,498	\$ 38,246	\$ 21,248	\$ 59,494
52	Bouchard Dr	679	Pavement	3	0	2	\$ 78,087	\$ 40,741	\$ 61,112	\$ 33,951	\$ 95,063
120	Bradford Dr	1807	Pavement	3	0	2	\$ 207,775	\$ 108,405	\$ 162,607	\$ 90,337	\$ 252,944
59	Caitlin Dr	2116	Pavement	3	0	2	\$ 243,348	\$ 126,964	\$ 190,446	\$ 105,804	\$ 296,250
61	Caitlin Dr	420	Pavement	3	0	2	\$ 48,311	\$ 25,206	\$ 37,808	\$ 21,005	\$ 58,813
31	Canterbury Pine Dr	1332	Pavement	2	0	3	\$ 153,227	\$ 79,945	\$ 119,917	\$ 66,621	\$ 186,538
191	Chick Dr	211	Pavement	3	0	1	\$ 24,270	\$ 12,662	\$ 18,994	\$ 10,552	\$ 29,546
192	Chick Dr	1144	Pavement	3	0	1	\$ 131,507	\$ 68,612	\$ 102,918	\$ 57,177	\$ 160,095
82	Church St	988	Pavement	3	0	2	\$ 113,636	\$ 59,288	\$ 88,933	\$ 49,407	\$ 138,340
70	Clearview Dr	2081	Pavement	3	0	2	\$ 239,266	\$ 124,834	\$ 187,252	\$ 104,029	\$ 291,280
86	College Ave	869	Pavement	3	0	2	\$ 99,910	\$ 52,127	\$ 78,190	\$ 43,439	\$ 121,629
87	College Ave	564	Pavement	2	0	3	\$ 64,869	\$ 33,844	\$ 50,767	\$ 28,204	\$ 78,970
88	College Ave	442	Pavement	2	0	3	\$ 50,819	\$ 26,514	\$ 39,772	\$ 22,095	\$ 61,867
83	College Ave	279	Pavement	2	0	3	\$ 32,099	\$ 16,747	\$ 25,121	\$ 13,956	\$ 39,077
76	Cumberland Ln	30	Pavement	2	0	2	\$ 3,497	\$ 1,824	\$ 2,737	\$ 1,520	\$ 4,257
77	Cumberland Ln	119	Pavement	2	0	2	\$ 13,650	\$ 7,122	\$ 10,683	\$ 5,935	\$ 16,618
78	Cumberland Ln	19	Pavement	2	0	2	\$ 2,206	\$ 1,151	\$ 1,726	\$ 959	\$ 2,685
75	Cumberland Ln	1447	Pavement	3	0	2	\$ 166,432	\$ 86,834	\$ 130,251	\$ 72,362	\$ 202,613
79	Cumberland Ln	494	Pavement	3	0	2	\$ 56,786	\$ 29,627	\$ 44,441	\$ 24,690	\$ 69,131
102	Elm St	146	Pavement	3	0	2	\$ 16,796	\$ 8,763	\$ 13,145	\$ 7,303	\$ 20,447
113	Elm St	155	Concrete	3	0	1	\$ 17,869	\$ 9,323	\$ 13,984	\$ 7,769	\$ 21,753
167	Elm St	40	Concrete	3	0	1	\$ 4,578	\$ 2,388	\$ 3,583	\$ 1,990	\$ 5,573
103	Elm St	599	Pavement	2	0	3	\$ 68,837	\$ 35,915	\$ 53,872	\$ 29,929	\$ 83,801
104	Elm St	187	Pavement	2	0	3	\$ 21,528	\$ 11,232	\$ 16,848	\$ 9,360	\$ 26,208
130	Falcon Crest Dr	924	Pavement	3	0	1	\$ 106,243	\$ 55,431	\$ 83,147	\$ 46,193	\$ 129,339
3	Garden Ave	1579	Pavement	1	1	4	\$ 181,583	\$ 94,739	\$ 142,108	\$ 78,949	\$ 221,057
2	Garden Ave	255	Pavement	2	0	3	\$ 29,379	\$ 15,328	\$ 22,992	\$ 12,773	\$ 35,765
117	Gateway Commons	1971	Pavement	3	0	2	\$ 226,648	\$ 118,251	\$ 177,377	\$ 98,543	\$ 275,919
51	Gray Rd	1905	Pavement	2	0	3	\$ 219,062	\$ 114,293	\$ 171,440	\$ 95,244	\$ 266,684
12	Gray Rd	560	Pavement	3	0	2	\$ 64,425	\$ 33,613	\$ 50,420	\$ 28,011	\$ 78,430
13	Gray Rd	875	Pavement	3	0	2	\$ 100,674	\$ 52,525	\$ 78,788	\$ 43,771	\$ 122,559
14	Gray Rd	34	Pavement	3	0	2	\$ 3,952	\$ 2,062	\$ 3,093	\$ 1,718	\$ 4,811
15	Gray Rd	1007	Pavement	3	0	2	\$ 115,840	\$ 60,438	\$ 90,658	\$ 50,365	\$ 141,023
16	Gray Rd	990	Pavement	3	0	2	\$ 113,847	\$ 59,398	\$ 89,098	\$ 49,499	\$ 138,596
17	Gray Rd	1750	Pavement	3	0	2	\$ 201,201	\$ 104,975	\$ 157,462	\$ 87,479	\$ 244,941
22	Gray Rd	2207	Pavement	3	0	1	\$ 253,850	\$ 132,443	\$ 198,665	\$ 110,369	\$ 309,035
50	Gray Rd	889	Pavement	3	0	2	\$ 102,242	\$ 53,343	\$ 80,015	\$ 44,453	\$ 124,468
21	Gray Rd Median	73	Pavement	3	0	2	\$ 8,392	\$ 4,378	\$ 6,568	\$ 3,649	\$ 10,216
67	Green St	1078	Concrete	1	0	4	\$ 123,923	\$ 64,656	\$ 96,983	\$ 53,880	\$ 150,863
9	Hickory Ln	1819	Pavement	1	0	3	\$ 209,130	\$ 109,111	\$ 163,667	\$ 90,926	\$ 254,593

1 Hidden Pines Dr	1937 Pavement	2	0		2	\$	222,799	\$	116,243	\$	174,364	\$	96,869	\$	271,233
6 Highmeadow Dr	352 Pavement	2	0		2	\$	40,537	\$	21,150	\$	31,724	\$	17,625	\$	49,349
5 Highmeadow Dr	860 Pavement	1	0		3	\$	98,885	\$	51,592	\$	77,388	\$	42,993	\$	120,381
7 Highmeadow Dr	354 Pavement	1	0		3	\$	40,666	\$	21,217	\$	31,825	\$	17,681	\$	49,506
74 Joseph Dr	1171 Pavement	3	0		2	\$	134,641	\$	70,248	\$	105,372	\$	58,540	\$	163,911
54 Kiara Ln	481 Pavement	3	0		1	\$	55,283	\$	28,843	\$	43,265	\$	24,036	\$	67,300
195 Laceys Way	484 Pavement	2	0		2	\$	55,688	\$	29,055	\$	43,582	\$	24,212	\$	67,794
32 Laurel Pines Dr	2807 Pavement	2	0		3	\$	322,751	\$	168,392	\$	252,588	\$	140,326	\$	392,914
127 Laurel Pines Dr	866 Concrete	3	0		1	\$	99,614	\$	51,972	\$	77,959	\$	43,310	\$	121,269
194 Libby Ave	321 Pavement	2	0		2	\$	36,902	\$	19,253	\$	28,880	\$	16,044	\$	44,924
73 Libby Ave	848 Pavement	3	0		2	\$	97,516	\$	50,878	\$	76,317	\$	42,398	\$	118,715
135 Libby Ave	1789 Pavement	3	0		2	\$	205,789	\$	107,368	\$	161,052	\$	89,473	\$	250,525
143 Library	470 Pavement	3	0		1	\$	54,099	\$	28,225	\$	42,338	\$	23,521	\$	65,859
144 Library	266 Pavement	3	0		1	\$	30,607	\$	15,969	\$	23,953	\$	13,307	\$	37,261
145 Library	134 Pavement	3	0		1	\$	15,372	\$	8,020	\$	12,030	\$	6,684	\$	18,714
68 Lincoln St	1207 Pavement	3	0		1	\$	138,836	\$	72,436	\$	108,654	\$	60,363	\$	169,018
38 Lucina Ter	431 Pavement	2	0		3	\$	49,588	\$	25,872	\$	38,808	\$	21,560	\$	60,367
25 Main St	2100 Pavement	1	0		3	\$	241,474	\$	125,986	\$	188,980	\$	104,989	\$	293,968
118 Main St	1538 Pavement	2	0		3	\$	176,847	\$	92,268	\$	138,402	\$	76,890	\$	215,293
26 Main St	841 Pavement	2	0		3	\$	96,767	\$	50,487	\$	75,731	\$	42,073	\$	117,804
28 Main St	750 Pavement	1	0		3	\$	86,196	\$	44,972	\$	67,457	\$	37,476	\$	104,934
24 Main St	1004 Pavement	3	0		2	\$	115,414	\$	60,216	\$	90,324	\$	50,180	\$	140,504
72 Main St	705 Pavement	3	0		2	\$	81,041	\$	42,283	\$	63,424	\$	35,235	\$	98,659
101 Main St	961 Concrete	3	0		1	\$	110,546	\$	57,676	\$	86,515	\$	48,064	\$	134,578
106 Main St	660 Concrete	3	0		1	\$	75,863	\$	39,581	\$	59,371	\$	32,984	\$	92,355
107 Main St	268 Concrete	3	0		1	\$	30,768	\$	16,053	\$	24,079	\$	13,377	\$	37,456
112 Main St	925 Concrete	3	0		1	\$	106,398	\$	55,512	\$	83,268	\$	46,260	\$	129,528
155 Main St	694 Pavement	3	0		2	\$	79,790	\$	41,629	\$	62,444	\$	34,691	\$	97,135
174 Main St	74 Pavement	3	0		1	\$	8,536	\$	4,453	\$	6,680	\$	3,711	\$	10,391
175 Main St	67 Concrete	3	0		1	\$	7,711	\$	4,023	\$	6,035	\$	3,353	\$	9,387
176 Main St	116 Concrete	3	0		1	\$	13,328	\$	6,954	\$	10,431	\$	5,795	\$	16,225
177 Main St	291 Concrete	3	0		1	\$	33,476	\$	17,466	\$	26,198	\$	14,555	\$	40,753
178 Main St	118 Pavement	3	0		1	\$	13,556	\$	7,073	\$	10,609	\$	5,894	\$	16,503
179 Main St	121 Pavement	3	0		1	\$	13,871	\$	7,237	\$	10,856	\$	6,031	\$	16,887
180 Main St	682 Pavement	3	0		2	\$	78,447	\$	40,929	\$	61,394	\$	34,108	\$	95,501
181 Main St	221 Pavement	3	0		2	\$	25,375	\$	13,239	\$	19,859	\$	11,033	\$	30,891
185 Main St	42 Concrete	3	0		1	\$	4,800	\$	2,504	\$	3,757	\$	2,087	\$	5,844
186 Main St	59 Concrete	3	0		2	\$	6,769	\$	3,531	\$	5,297	\$	2,943	\$	8,240
187 Main St	156 Pavement	3	0		1	\$	17,886	\$	9,332	\$	13,998	\$	7,777	\$	21,775
188 Main St	898 Pavement	3	0		2	\$	103,241	\$	53,865	\$	80,797	\$	44,887	\$	125,685
189 Main St	523 Pavement	3	0		2	\$	60,125	\$	31,369	\$	47,054	\$	26,141	\$	73,195
29 Main St	461 Pavement	2	0		3	\$	53,030	\$	27,668	\$	41,501	\$	23,056	\$	64,558
27 Main St	349 Pavement	1	0		4	\$	40,102	\$	20,923	\$	31,384	\$	17,435	\$	48,819
190 Main St	341 Pavement	1	0		4	\$	39,269	\$	20,488	\$	30,732	\$	17,073	\$	47,806
137 Marathon Ave	305 Pavement	3	0		2	\$	35,103	\$	18,315	\$	27,472	\$	15,262	\$	42,734
138 Marathon Ave	46 Pavement	3	0		2	\$	5,290	\$	2,760	\$	4,140	\$	2,300	\$	6,439
123 Matthew Dr	1113 Pavement	3	0		2	\$	128,017	\$	66,791	\$	100,187	\$	55,660	\$	155,847
41 Meadow Crossing Dr	500 Pavement	3	0		2	\$	57,459	\$	29,979	\$	44,968	\$	24,982	\$	69,951
80 Meadowbrook West	1270 Pavement	3	0		2	\$	146,086	\$	76,219	\$	114,329	\$	63,516	\$	177,844

115	Mechanic St	813	Concrete	3	0	1	\$	93,513	\$	48,790	\$	73,184	\$	40,658	\$	113,842
140	Morrill Ave	872	Pavement	3	0	2	\$	100,264	\$	52,312	\$	78,467	\$	43,593	\$	122,060
111	Morrill Ave	380	Pavement	2	0	3	\$	43,753	\$	22,828	\$	34,242	\$	19,023	\$	53,265
18	Mosher Rd	1139	Pavement	1	0	3	\$	130,930	\$	68,311	\$	102,467	\$	56,926	\$	159,393
19	Mosher Rd	483	Pavement	1	0	4	\$	55,515	\$	28,964	\$	43,447	\$	24,137	\$	67,584
20	Mosher Rd	337	Pavement	1	0	4	\$	38,742	\$	20,213	\$	30,320	\$	16,844	\$	47,164
156	Municipal	469	Concrete	3	0	2	\$	53,903	\$	28,123	\$	42,185	\$	23,436	\$	65,621
30	Narragansett School - School Department	982	Pavement	2	0	2	\$	112,963	\$	58,937	\$	88,406	\$	49,114	\$	137,520
172	New Development	727	Pavement	3	0	1	\$	83,642	\$	43,639	\$	65,459	\$	36,366	\$	101,825
23	New Portland Rd	257	Pavement	3	0	2	\$	29,587	\$	15,437	\$	23,155	\$	12,864	\$	36,019
182	New Portland Rd	905	Concrete	3	0	2	\$	104,075	\$	54,300	\$	81,450	\$	45,250	\$	126,700
183	New Portland Rd	501	Pavement	3	0	2	\$	57,617	\$	30,061	\$	45,092	\$	25,051	\$	70,143
184	New Portland Rd	360	Pavement	2	0	3	\$	41,453	\$	21,628	\$	32,441	\$	18,023	\$	50,464
173	Newell St	323	Pavement	3	0	2	\$	37,123	\$	19,369	\$	29,053	\$	16,140	\$	45,193
44	Oak Wood Dr	3496	Pavement	2	0	3	\$	402,031	\$	209,755	\$	314,633	\$	174,796	\$	489,429
11	Path	388	Pavement	2	0	3	\$	44,663	\$	23,302	\$	34,953	\$	19,419	\$	54,372
150	path	399	Pavement	3	0	1	\$	45,916	\$	23,956	\$	35,934	\$	19,963	\$	55,897
109	Path-Sunrise Ln to Douglas Cir	165	Pavement	2	0	3	\$	18,998	\$	9,912	\$	14,868	\$	8,260	\$	23,128
131	Peregrine Dr	305	Pavement	3	0	1	\$	35,075	\$	18,300	\$	27,450	\$	15,250	\$	42,700
147	Peregrine Dr	788	Pavement	3	0	1	\$	90,599	\$	47,269	\$	70,904	\$	39,391	\$	110,295
63	Polliwog Ln	485	Pavement	3	0	2	\$	55,765	\$	29,095	\$	43,642	\$	24,245	\$	67,887
65	Preble St	971	Pavement	3	0	1	\$	111,618	\$	58,235	\$	87,353	\$	48,529	\$	135,882
66	Preble St	597	Pavement	3	0	1	\$	68,641	\$	35,813	\$	53,719	\$	29,844	\$	83,564
4	Primrose Ln	1324	Pavement	3	0	2	\$	152,217	\$	79,418	\$	119,126	\$	66,181	\$	185,308
55	Quincy Dr	1012	Pavement	3	0	2	\$	116,367	\$	60,713	\$	91,070	\$	50,595	\$	141,665
56	Quincy Dr	1033	Pavement	3	0	2	\$	118,741	\$	61,952	\$	92,928	\$	51,627	\$	144,554
57	Quincy Dr	576	Pavement	3	0	2	\$	66,197	\$	34,538	\$	51,807	\$	28,781	\$	80,588
58	Quincy Dr	583	Pavement	3	0	2	\$	67,004	\$	34,959	\$	52,438	\$	29,132	\$	81,570
62	Quincy Dr	1698	Pavement	3	0	2	\$	195,237	\$	101,863	\$	152,794	\$	84,886	\$	237,680
64	Quincy Dr	477	Pavement	3	0	2	\$	54,827	\$	28,606	\$	42,908	\$	23,838	\$	66,746
121	Quincy Dr	459	Pavement	3	0	2	\$	52,778	\$	27,537	\$	41,305	\$	22,947	\$	64,252
122	Quincy Dr	1902	Pavement	3	0	2	\$	218,737	\$	114,124	\$	171,186	\$	95,103	\$	266,289
124	Quincy Dr	1042	Pavement	3	0	2	\$	119,786	\$	62,497	\$	93,746	\$	52,081	\$	145,827
133	Quincy Dr	603	Pavement	3	0	2	\$	69,373	\$	36,195	\$	54,292	\$	30,162	\$	84,455
141	Rackleff Way	651	Pavement	3	0	1	\$	74,818	\$	39,035	\$	58,553	\$	32,529	\$	91,082
105	Railroad Ave	465	Pavement	3	0	2	\$	53,454	\$	27,889	\$	41,833	\$	23,241	\$	65,074
114	Railroad Ave	837	Concrete	3	0	1	\$	96,227	\$	50,205	\$	75,308	\$	41,838	\$	117,146
132	Ridgefield Dr	671	Pavement	3	0	1	\$	77,127	\$	40,240	\$	60,360	\$	33,533	\$	93,894
69	Robie St	264	Pavement	2	0	3	\$	30,386	\$	15,854	\$	23,780	\$	13,211	\$	36,992
43	Running Springs Rd	2206	Pavement	2	0	3	\$	253,683	\$	132,356	\$	198,534	\$	110,297	\$	308,831
45	Running Springs Rd	1022	Pavement	2	0	3	\$	117,510	\$	61,309	\$	91,964	\$	51,091	\$	143,055
53	Samantha Dr	1639	Pavement	3	0	1	\$	188,448	\$	98,321	\$	147,481	\$	81,934	\$	229,415
125	School Area	810	Pavement	3	0	2	\$	93,186	\$	48,619	\$	72,928	\$	40,515	\$	113,443
126	School Area	1466	Pavement	3	0	2	\$	168,555	\$	87,942	\$	131,913	\$	73,285	\$	205,198
81	School St	1636	Pavement	3	0	2	\$	188,176	\$	98,179	\$	147,268	\$	81,816	\$	229,083
84	School St	354	Pavement	3	0	1	\$	40,692	\$	21,231	\$	31,846	\$	17,692	\$	49,538
85	School St	260	Pavement	3	0	1	\$	29,851	\$	15,574	\$	23,362	\$	12,979	\$	36,340
129	School St	1522	Pavement	3	0	2	\$	175,021	\$	91,315	\$	136,973	\$	76,096	\$	213,069
170	School St	127	Concrete	3	0	1	\$	14,602	\$	7,618	\$	11,428	\$	6,349	\$	17,776

171 School St	86 Concrete	3	0	1	\$	9,916	\$	5,174	\$	7,760	\$	4,311	\$	12,072
10 Sebago Lake Rd	550 Pavement	3	0	2	\$	63,234	\$	32,992	\$	49,488	\$	27,493	\$	76,981
46 Shady Run Ln	988 Pavement	3	0	2	\$	113,580	\$	59,259	\$	88,888	\$	49,382	\$	138,271
119 Shamrock Dr	1652 Pavement	3	0	1	\$	189,927	\$	99,092	\$	148,639	\$	82,577	\$	231,216
134 Shepards Way	292 Pavement	3	0	2	\$	33,607	\$	17,534	\$	26,301	\$	14,612	\$	40,913
136 Shepards Way	972 Pavement	3	0	2	\$	111,724	\$	58,291	\$	87,436	\$	48,576	\$	136,011
34 Solomon Dr	1303 Pavement	3	0	2	\$	149,832	\$	78,173	\$	117,260	\$	65,144	\$	182,404
35 Solomon Dr	1685 Pavement	3	0	2	\$	193,774	\$	101,100	\$	151,649	\$	84,250	\$	235,899
93 South St	506 Pavement	3	0	1	\$	58,193	\$	30,362	\$	45,542	\$	25,301	\$	70,844
94 South St	1632 Pavement	3	0	1	\$	187,674	\$	97,917	\$	146,876	\$	81,598	\$	228,473
95 South St	1439 Pavement	3	0	2	\$	165,433	\$	86,313	\$	129,469	\$	71,927	\$	201,396
96 South St	567 Pavement	3	0	2	\$	65,241	\$	34,039	\$	51,058	\$	28,366	\$	79,424
97 South St	259 Pavement	3	0	2	\$	29,824	\$	15,560	\$	23,341	\$	12,967	\$	36,308
98 South St	1252 Pavement	3	0	2	\$	143,928	\$	75,093	\$	112,639	\$	62,577	\$	175,216
99 South St	904 Pavement	3	0	2	\$	103,956	\$	54,238	\$	81,357	\$	45,198	\$	126,555
100 South St	275 Pavement	3	0	2	\$	31,635	\$	16,505	\$	24,758	\$	13,755	\$	38,513
116 South St	1412 Pavement	3	0	2	\$	162,388	\$	84,724	\$	127,086	\$	70,604	\$	197,690
151 South St	1026 Pavement	3	0	2	\$	117,980	\$	61,555	\$	92,332	\$	51,296	\$	143,628
152 South St	410 Pavement	3	0	2	\$	47,171	\$	24,611	\$	36,917	\$	20,509	\$	57,426
163 South St	304 Concrete	3	0	1	\$	34,979	\$	18,250	\$	27,375	\$	15,208	\$	42,583
166 South St	73 Concrete	3	0	1	\$	8,371	\$	4,367	\$	6,551	\$	3,639	\$	10,190
42 Springbrook Ln & Meadow Crossing	2489 Pavement	3	0	2	\$	286,215	\$	149,330	\$	223,994	\$	124,441	\$	348,436
60 Starlit Way	461 Pavement	3	0	2	\$	53,041	\$	27,674	\$	41,511	\$	23,061	\$	64,572
89 State St	656 Pavement	2	0	3	\$	75,438	\$	39,359	\$	59,039	\$	32,799	\$	91,838
90 State St	239 Pavement	3	0	2	\$	27,505	\$	14,350	\$	21,526	\$	11,959	\$	33,484
91 State St	766 Pavement	3	0	2	\$	88,089	\$	45,959	\$	68,939	\$	38,299	\$	107,238
92 State St	1228 Pavement	3	0	2	\$	141,184	\$	73,661	\$	110,492	\$	61,384	\$	171,876
164 State St	112 Concrete	3	0	1	\$	12,929	\$	6,746	\$	10,119	\$	5,621	\$	15,740
165 State St	296 Pavement	3	0	1	\$	34,097	\$	17,790	\$	26,685	\$	14,825	\$	41,509
48 Sunrise Ln	497 Pavement	2	0	3	\$	57,117	\$	29,800	\$	44,700	\$	24,833	\$	69,534
39 Teran St	644 Pavement	3	0	2	\$	74,110	\$	38,666	\$	57,999	\$	32,222	\$	90,221
71 Timber Ridge Rd & Gateway Common	2485 Pavement	3	0	2	\$	285,744	\$	149,084	\$	223,626	\$	124,236	\$	347,862
139 Town Common	1511 Pavement	3	0	1	\$	173,738	\$	90,646	\$	135,969	\$	75,538	\$	211,507
146 Track	571 Concrete	3	0	1	\$	65,662	\$	34,259	\$	51,388	\$	28,549	\$	79,937
160 Track	174 Pavement	3	0	2	\$	20,059	\$	10,465	\$	15,698	\$	8,721	\$	24,419
49 Village Woods Cir	2157 Pavement	2	0	3	\$	248,073	\$	129,429	\$	194,144	\$	107,858	\$	302,002
47 Village Woods Cir	456 Pavement	3	0	2	\$	52,482	\$	27,382	\$	41,073	\$	22,818	\$	63,891
148 Wagner Farm Rd	649 Pavement	3	0	2	\$	74,584	\$	38,913	\$	58,370	\$	32,428	\$	90,798
149 Wagner Farm Rd	2145 Pavement	3	0	2	\$	246,673	\$	128,699	\$	193,048	\$	107,249	\$	300,297
157 Water St	143 Pavement	3	0	1	\$	16,414	\$	8,564	\$	12,846	\$	7,136	\$	19,982
128 Water Street	144 Concrete	3	0	1	\$	16,523	\$	8,621	\$	12,931	\$	7,184	\$	20,115
108 Weeks Rd	865 Pavement	3	0	2	\$	99,432	\$	51,878	\$	77,816	\$	43,231	\$	121,048
153 Weeks Rd	986 Pavement	3	0	2	\$	113,402	\$	59,166	\$	88,750	\$	49,305	\$	138,055
154 Weeks Rd	282 Pavement	3	0	2	\$	32,379	\$	16,894	\$	25,340	\$	14,078	\$	39,418
37 William Henry Dr	1690 Pavement	3	0	2	\$	194,298	\$	101,373	\$	152,060	\$	84,478	\$	236,537
33 Winterberry Dr	688 Pavement	2	0	3	\$	79,100	\$	41,270	\$	61,905	\$	34,391	\$	96,296
8 Woodland Rd	1743 Pavement	3	0	2	\$	200,428	\$	104,571	\$	156,857	\$	87,143	\$	243,999

Condition Rating	
0	Proposed
1	Excellent
2	Good
3	Fair
4	Poor

Total of Filtered	\$ 16,414,368	\$ 8,564,018	\$ 12,846,027	\$ 7,136,682	\$ 19,982,709
Total of All	\$ 17,545,292	\$ 9,154,065	\$ 13,731,098	\$ 7,628,388	\$ 21,359,486

Treatment	Cost/LF
Cost of New Federal	\$ 115
Cost of New Local	\$ 60
Cost of Rehab Feder.	\$ 90
Cost of Rehab Local	\$ 50
Concrete	\$ 140

Assuming 5' wide sidewalk



APPENDIX 2 MAINE DEPARTMENT OF TRANSPORTATION CRASH DIAGRAM

Gorham

17161

Study period 2013-2015

of Crashes: 11 CRF = 1.89

Prepared by M&O Traffic Engineering
RFK3

Gray Road



17161

33450 11-29-14 5:58P D/C Follow too close
12250 2-19-13 11:27P D/C Follow too close
38472 8-11-15 9:38A D/C1 Fail to yield
2948 1-18-15 9:45A D/C Improper turn

crosswalk

45088 10-13-15 4:55P D/C Follow too close

25553 9-18-14 7:18A D/C Follow too close

26074 9-25-14 11:17P D/C Follow too close

15014 5-15-15 4:50P D/C Fail to yield

13802 5-14-14 4:00P D/C Improper turn

29861 9-25-13 4:18P D/C Follow too close

29869 10-5-13 7:42P D/C Follow too close

Main Street (Route 4/25)

House

House

 = Traffic signal



South St.

Gorham House of Pizza

(C) 45625 10-23-15 3:02P D/C Fail to yield
(C)

Gorham

Link# 12434-17158

Element# 3106163

Study Period: 2013-2015

of Crashes - 14 CRF= 3.36

Prepared by M&O Traffic Engineering
RFK3

1445 1-14-15 6:39P SL/C Improper backing

23188 8-23-14 11:50A D/C Driver Inattention

7418 3-1-14 9:58A D/C Follow too close
(C)

11409 3-31-15 7:28P D/C Follow too close

11125 4-26-13 1:25P D/C Improper turn

35890 12-24-13 12:59P W/C Improper backing

8095 2-5-13 4:06P D/C Fail to yield
(C)

13730 5-4-15 5:32P D/C Fail to yield
(C)

35824 11-12-13 4:03P D/C Pedestrian error
(P) (A)

14305 5-20-14 2:29P D/C Follow too close
(C) (C)

10970 3-31-15 4:26P D/C Improper turn

12241 2-15-13 4:54P D/C Improper turn

29197 10-24-14 6:19P D/C Fail to yield

12434

Roble Gym

parking lot

The Grind

17158

Amato's

Raney's

Gorham

Link# 17159-17160

Element# 3106574

Study period 2013-2015

of Crashes: 14 CRF= 1.30

Prepared by M&O Traffic Engineering
RFKJ

Driveway

Big Apple/
Citgo

Village
Mall

17159

32782 11-25-14 4:59P D/C Follow too close

12237 2-12-13 10:51A W/C Fall to yield

21036 7-20-15 10:50A D/C Fall to yield

14761 5-28-14 5:44P D/C Vision obscured

12253 2-23-13 5:51P S/R Improper turn

2020 1-8-14 3:45P W/C Ran off road

29854 9-13-13 8:06A D/C Follow too close

41223 9-4-15 5:32P D/C Disregard yield sign

35881 12-18-13 12:42A S/S Ran off road

52405 12-16-15 6:40A D/C Follow too close

Main St.

Hannaford

17160



(B) 29888 10-24-13 6:35P D/C Follow too close

12160 4-4-14 4:18P D/CL Unsafe speed

43674 9-29-15 11:08A D/C Follow too close

(C) 12262 2-28-13 9:23P W/R Hit pothole

Gorham

Link# 17160-17161

Element# 3117207

Study Period: 2012-2014

of Crashes: 13 CRF= 1.14

Prepared by M&O Traffic Engineering
RFK3



17160

17161

Landing Drive

