Agenda

1. Council Order: Amending Code Chapter 265 Solid Waste, to Allow Disposal of Solid Waste at Other Facilities (Materials Attached)

2. Council Order: MaineDOT Funding Application for Municipal Partnership Initiative Program (MPI), Hancock Street Mill & Fill and Improvements (Materials Attached)

CITY COUNCIL ACTION

Council Meeting Date: October 14, 2020
Item No: 20-___
Responsible Dept: Legal
Action Requested: Ordinance
Map/Lot: N/A

Title, Ordinance

Amending the Code of the City of Bangor, Chapter 265, Solid Waste, to Allow for Disposal of Solid Waste at Other Facilities

Summary

This Ordinance would amend the Solid Waste chapter of the City Code by allowing disposal of solid waste at an alternative waste processing facility if the facility in Hampden is unavailable.

In several sections of the City Code, the Coastal Resources facility in Hampden, Maine is listed as the only location where solid waste can be sent for processing. If this facility is unavailable, as it is presently, the City must dispose of solid waste elsewhere.

This ordinance amendment would give the City Manager or his or her designee authority to direct solid waste to another facility if the Hampden facility must be bypassed or is otherwise unavailable.

Committee Action

Committee: Infrastructure Committee
Meeting Date: 10/20/2020
Action: For: Against:

Staff Comments & Approvals

__________________________________________
City Manager

__________________________________________
City Solicitor

__________________________________________
Finance Director

Introduced for: First Reading and Referral
ORDINANCE, Amending the Code of the City of Bangor, Chapter 265, Solid Waste, to Allow for Disposal of Solid Waste at Other Facilities

WHEREAS, proper disposal of solid waste is necessary for public health and safety; and

WHEREAS, in several sections of the City Code, the Coastal Resources facility in Hampden, Maine is listed as the only permissible location where solid waste can be sent for processing; and

WHEREAS, at present, said facility is unavailable;

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BANGOR AS FOLLOWS, THAT

Chapter 265, Solid Waste, of the Code of the City of Bangor is amended as follows:

§ 265-1 Collection and disposal.

No person, corporation or legal entity shall dispose of solid waste in any manner which is contrary to the provisions of this section, as hereinafter described.

B. Purpose. The purpose of this section is to promote the public health, safety and welfare; to gain management control over solid waste and enable the reclamation of resources, including energy therefrom; to provide for the orderly operation of a solid waste disposal facility pursuant to 38 M.R.S.A. § 1305, Subsection 1; to allow the City to properly administer a contract with the waste processing facility located in Hampden, Maine, owned by Coastal Resources of Maine LLC and/or its assignees, hereinafter referred to as the "Coastal Facility"; and to control commercial haulers and noncommercial haulers who collect and transport solid waste within the limits of the City of Bangor.

C. Definitions. Any terms, phrases and words not defined herein shall have the generally accepted meaning or definition promulgated in Webster's Seventh New Collegiate Dictionary (Copyright 1971). The terms, phrases and words in this section shall have the following meanings:

ACCEPTABLE SOLID WASTE

All wastes which the Coastal Processing Facility will accept, including all ordinary household, municipal, institutional, commercial and industrial wastes, refuse and discarded materials. Examples of acceptable forms of solid waste are ordinary trash, plastic milk jugs and detergent bottle, tin and aluminum cans, empty aerosol cans and cardboard and paper.
HAULER
An individual, corporation, partnership or other legal entity who or which hauls unacceptable solid waste (waste not accepted at Coastal Processing Facility) for himself, herself, itself or another from within the limits of the City.

PROCESSING FACILITY
The waste processing facility located in Hampden, Maine, owned by Coastal Resources of Maine LLC and/or its assignees, or, in the event that, in the sole discretion of the City Manager or his or her designee, said waste processing facility must be bypassed or is otherwise unavailable, such other waste processing facility as the City Manager or his or her designee may designate.

UNACCEPTABLE SOLID WASTE
All waste that is not acceptable solid waste and will not be processed by the Coastal Processing Facility at its Hampden, Maine, facilities. Items under this section are considered to be unacceptable forms of solid waste:

D. Flow control. Commencing April 1, 2018, all acceptable solid waste generated within the City of Bangor shall be disposed of at the Coastal Processing Facility in Hampden by municipal residential curbside pickup or by commercial haulers who are licensed as hereinafter provided.

E. Licensing. All commercial haulers must obtain an annual license from the office of the Bangor Public Works Department.

(1) The Public Works Director shall devise an application form which shall be approved by the appropriate Council committee prior to its use. Each application must be accompanied by a list of the current license plate numbers of all trucks owned by the applicant which are to be used to haul waste to the Coastal Processing Facility. The list shall be kept up-to-date, and any changes must be reported immediately to the Public Works office. Trucks with unregistered plates will not be permitted access to the Coastal Processing Facility.

(2) Only vehicles which are in good operating condition, which have their loads enclosed within a container or covered securely and which are capable of discharging their loads on the Coastal Processing Facility’s tipping room floor by mechanical means will be licensed.

G. Credit for tonnage. It shall be the responsibility of the commercial hauler to ensure that the City of Bangor is given credit by the Coastal Processing Facility for all acceptable waste collected within the City of Bangor and delivered to the Coastal Processing Facility by him or her. In the event that acceptable solid waste collected by a commercial hauler within the City of Bangor is commingled in a vehicle with any other solid waste collected in any other municipality the commercial hauler shall have a method acceptable to the City to determine the weight of the solid waste collected within the City of Bangor. The commercial hauler shall provide documentation to the City of Bangor, upon request, for the amount of solid waste collected within the City of Bangor.
H. Responsibilities of the hauler. The commercial hauler shall be held fully responsible for the presence of unacceptable waste in the loads delivered by them to the Coastal Processing Facility. In the event that the commercial hauler disposes of any unacceptable waste at the Coastal Processing Facility, said waste shall be immediately removed from said Coastal Processing Facility by the hauler at the hauler’s expense or by the City or its agents, with double the cost of removal and disposal to be billed to the hauler. The hauler shall be fully responsible for the handling of waste between its source in Bangor and the Coastal Processing Facility in Hampden and shall save the City of Bangor harmless from any or all claims of injury or damage resulting from his or her hauling operations.

I. Records. All commercial haulers shall provide the City of Bangor Public Works Director with a list of all major users and a description of all routes, which shall be initially submitted at the time of application for license and shall be updated monthly. In addition, the driver of each of the commercial hauler’s vehicles shall identify the source of each load on the weight ticket at the Coastal Processing Facility, either by route number or by the name of the commercial establishment if the load is from a single source. The Public Works Director or his or her agents shall have the right, upon reasonable notice, to inspect the records of any commercial hauler as to the solid waste collected by him or her within the limits of the City of Bangor.

J. Payment. Each commercial hauler will be billed monthly for the total tonnage delivered by him or her to the Coastal Processing Facility from the City of Bangor at a rate per ton equal to the sum of the current tipping fee price, any administrative fees charged to support multijurisdictional solid waste activities and a 1% City of Bangor administrative fee, said billing to be done by the City of Bangor or its designated agent.

Additions are underlined, deletions struck-through.
To: Infrastructure Committee  
From: Engineering Department, John Theriault, PE  
Date: October 13, 2020  

Re: MaineDOT Funding Application for Municipal Partnership Initiative Program (MPI)  
Hancock Street - Oak Street to State Street, 0.80 Miles

Dear Councilors,  

The Engineering Department would like to submit an application for Funding to the Maine Department of Transportation under their 2021 Municipal Partnership Initiative (MPI) Program for Hancock Street from Oak Street to State Street which is approximately 0.80 miles.  

The project will include a 2” mill of the existing pavement followed by pavement overlay. The project will also include resetting curb and/or replacing curb, sidewalk reconstruction, and improvements to sidewalk ramps.  

This project was included in the City of Bangor’s 2023 project list for BACTS, however, the existing condition of the roadway will not allow the City to wait this long for possible future funding.  

The estimated total cost of this project including design and construction is approximately $1,200,000.00. The MaineDOT MPI program provides for 50 percent of the total cost of the project, with the City of Bangor providing the remaining 50 percent local share. The City of Bangor has had very good luck in obtaining funding from MaineDOT through this program. I believe this project is an excellent candidate for this program.  

I look forward to discussing this project at the October 20, 2020 IC Meeting.  

Sincerely,  

John Theriault, PE, PTOE  
Bangor City Engineer
BANGOR MPI PROJECT
HANCOCK STREET
1. BANGOR

The following projects are intended for roadway preservation (PRES) such as mill and fill:

PRES 1: Oak Street/Broadway – State Street to Penobscot Bridge
Total project length is 1,360 feet, (0.26 miles).

The project is to include a 2” mill and overlay of existing pavement. Reset existing granite curb in locations where curb reveal has been reduced to less than 5”. Replace existing bituminous curb with slip form concrete curb. Overlay sidewalks and provide sidewalk ramp improvements to meet ADA requirements including tactile warning surfaces. Narrow the slip lane from Oak Street to Washington Street (SB to WB) by enlarging the curbed island and adjusting pavement markings.

The estimated cost of the proposed work for PRES 1 is $577,200.

PRES 2: Hancock Street – Oak Street to State Street
Total project length is 4,145 feet, (0.79 miles).

The project is to include a 2” mill and overlay of existing pavement. Reset existing granite curb in locations where curb reveal has been reduced to less than 5”. Replace existing bituminous curb with slip form concrete curb. Provide sidewalk ramp improvements to meet ADA requirements including tactile warning surfaces. If sidewalk surface is reasonably level overlay with pavement; if sidewalks have degraded substantially call for reconstruction. Remove and replace damaged catch basins and manholes and ensure all catch basins have cascade type covers.

The estimated cost of the proposed work for PRES 2 is $1,199,900.

PRES 3: Main Street – Hammond Street to Cedar Street
Total project length is 1,780 feet, (0.34 miles).

The project is to include a 2” mill and overlay of existing pavement. South of May Street in locations where curb reveal has been reduced to less than 5” reset existing granite curb. North of May Street perform milling to increase inadequate curb reveal. Provide sidewalk ramp improvements to meet ADA requirements including tactile warning surfaces.

The estimated cost of the proposed work for PRES 3 is $582,400.
## PRES 2: Hancock Street - Oak Street to State Street - 0.79 mi
### PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE
#### Spring 2020

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**SUBTOTAL** $923,510.00

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**CONSTRUCTION TOTAL** $1,071,370.00

**PRELIMINARY ENGINEERING** $42,854.80

**CONSTRUCTION ENGINEERING** $85,709.60

**RIGHT OF WAY** $0.00

**TOTAL** $1,199,934.40
Authorize the City Engineer to Submit MaineDOT Funding Application for Municipal Partnership Initiative Program (MPI), Hancock Street Mill & Fill - from Oak Street to State Street

The Order would authorize the City Engineer to submit a MaineDOT Funding Application for Municipal Partnership Initiative Program (MPI) for Hancock Street, from Oak Street to State Street, a distance of 0.80 miles.

The project consists of a 2” mill of existing pavement and pavement overlay, resetting or replacing curb, sidewalk reconstruction and improvements to sidewalk ramps.

The estimated cost of the project including design and construction is approximately $1,200,000.00. MaineDOT MPI program provides for 50% of the total cost, with the City of Bangor providing the remaining 50% local share from FY22.

Committee Action
Committee: Infrastructure Committee
Action: Recommend for passage
Meeting Date: 10/20/2020

Staff Comments & Approvals

Introduced for: Consent
Authorize the City Engineer to Submit MaineDOT Funding Application for Municipal Partnership Initiative Program (MPI), Hancock Street Mill & Fill - from Oak Street to State Street

Be it Ordered by the City Council of the City of Bangor that,

Authorize the City Engineer to Submit MaineDOT Funding Application for Municipal Partnership Initiative Program (MPI), Hancock Street Mill & Fill - from Oak Street to State Street.
Pedestrian Safety Action Plan

City of Bangor

September 2020
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<td>MaineDOT’s Striping Guidance for Municipalities</td>
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<td>MaineDOT’s Traffic Calming Policy</td>
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Heads Up Project Overview

The Maine Department of Transportation (MaineDOT) has partnered with the Bicycle Coalition of Maine (BCM) and 21 communities across Maine to facilitate a series of public meetings addressing pedestrian safety. As part of the Heads Up Pedestrian Safety Initiative, these meetings:

- collected information on locations the residents felt were unsafe;
- identified possible infrastructure changes to improve pedestrian safety; and
- discussed specific educational and law enforcement interventions that might improve driver and pedestrian behavior.

The aim of the project is to explore potential short-, medium-, and long-term mitigation strategies to improve pedestrian safety and reduce crashes.

Purpose and Need

From 2003 to 2014, the number of persons killed while walking on Maine’s roadways hovered between 7 and 13 per year. Like many other states across the country, beginning in 2015 and extending through 2017, Maine experienced a sharp increase in pedestrian fatalities, reaching Maine’s high of 19 in 2017. In 2018, Maine had only 6 fatalities, but 2019 continued the trend of higher numbers with 18 pedestrian deaths.

Figure 1: Maine Pedestrian Fatalities (2004 – 2018)
Maine’s crash data indicates this increase in pedestrian fatalities has no clear single cause, but is the result of a combination of factors that include roadway design and risky behaviors by both drivers and pedestrians.

In late 2016, MaineDOT initiated a process to engage the public in efforts to improve pedestrian safety. MaineDOT’s Safety Office identified 21 communities that experienced the highest number of pedestrian crashes between 2011 and 2015, often representing the state’s most densely populated and “urbanized” areas. The identified 21 “Focus Communities” in alphabetical order are:

<p>| | | |</p>
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<td>8</td>
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<td>9</td>
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<td>21</td>
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Figure 2: Heads Up Pedestrian Safety Project - Focus Communities

The **Heads Up Pedestrian Safety Project** was launched in 2017 and is anticipated to run at least through 2020.

This initiative includes the following activities for each of the 21 Focus Communities:

1. Convene and facilitate **Community Pedestrian Safety Forums** with community leadership, residents, and interested stakeholder groups to define local issues, review the community’s pedestrian crash data, and identify / prioritize the locations of primary risk and need.

2. Facilitate an infrastructure **Site Safety Review** with municipal staff and other interested parties, in which the top 5 (and in some cases, more) problem locations identified by the community at the **Safety Forum** are analyzed for possible infrastructure changes (e.g. painting crosswalks, changing curb lines, adding refuge islands, adding signs, etc.).
3. Convene and facilitate Safer Walking Behavioral Forums for community leadership, residents, and interested stakeholder groups that focus on identifying priority problem behaviors, and then brainstorming educational and law enforcement interventions to improve safety for pedestrians.

4. Collaboratively develop with each municipality a community specific Pedestrian Safety Action Plan (strategy) that incorporates both long-term and short-term alternatives for reducing the number of pedestrian crashes. A wide variety of possible mitigation recommendations were identified and are organized according to the classic Safe Routes to School “5 E’s” model: Engineering, Education, Encouragement, Enforcement, and Evaluation. These strategies address policy, growth, infrastructure, education, outreach, and law enforcement.

5. Collaborate with local law enforcement to implement a Pedestrian Safety Enforcement Program that supports police officers proactively interacting with individuals engaged in behaviors that may put pedestrians at risk. Program supports include technical assistance, education, outreach, handouts, and high-visibility safety items to distribute.

Bangor’s Process and Results

Community Pedestrian Safety Forum

Two Community Pedestrian Safety Forums were held in Bangor: the one for the “west-side” of Bangor on August 9, 2017 was attended by 34 people; the other, for the “east-side” of Bangor on August 16, 2017 was attended by 38 people. Participants at both forums included municipal officials, MaineDOT and BCM staff, and the general public. Participants used TurningPoint® real-time polling technology to gather key information from participants, which showed that:

West-Side Bangor Forum

- 42% of participants were from the general public
- 58% described their walking habits as “for exercise and errands”
- 73% said that roadway safety was the combined result of drivers, persons walking, and road design
East-Side Bangor Forum

- 88% of participants were from the general public
- 71% described their walking habits as “for exercise and errands”
- 31% said that roadway safety was the combined result of drivers, persons walking, and road design

During the forums, the following locations were identified as “priority” problem locations needing attention. Locations were identified as the places ranked as “highest” or “high” priority for attention by a majority of the participants. The two Bangor forums had many overlapping areas of concern. The table below combines the list of priority locations identified in each of the forums.

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<th>Priority Locations (East-Side + West-Side Bangor Combined)</th>
<th>% High Priority</th>
<th>Rank</th>
<th>Participant Comments</th>
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| Broadway (I-95 / Center Street to Griffin Road)           | N/A             | 1    | • “No shoulder or bike lanes”  
  • “Too many cars”  
  • “Sidewalk ends abruptly”  
  • “Sidewalks too narrow”  
  • “Roads seem too wide”  
  • “Speeding traffic”  
  • “No crosswalks”  
  • “No sidewalks”  
  • “Crosswalks not visible enough”  
  • “Signals not present / working”  
  • “Maintenance issues”  
  • “Lack of ADA features” |

| Intersection of Hammond Street / 14th Street / Royal Road | N/A             | 1    | • “Roads seem too wide”  
  • “Speeding traffic”  
  • “Crosswalks too long”  
  • “Crosswalks not visible enough” |
<table>
<thead>
<tr>
<th>Priority Locations (East-Side + West-Side Bangor Combined)</th>
<th>% High Priority</th>
<th>Rank</th>
<th>Participant Comments</th>
</tr>
</thead>
</table>
| Stillwater Avenue (I-95 overpass to Gilman Road / Home Depot area) | N/A | 2 | “Roads seem too wide”  
“Speeding traffic”  
“No crosswalks”  
“No sidewalks”  
“Crosswalks too long”  
“Signals not present / working”  
“Running red lights” |
| Maine Avenue / Odlin Road (I-395 to Vermont Avenue Roundabout) | N/A | 2 | “Roads seem too wide”  
“Speeding traffic”  
“No sidewalks”  
“Lack of ADA features” |
| 14th Street Extension from the Kenduskeag Stream on Valley Avenue to Ohio Street | N/A | 3 | “Roads seem too wide”  
“Speeding traffic”  
“No crosswalks”  
“No sidewalks”  
“Lack of ADA features” |
| Oak Street, State Street Bridge & Intersection with Washington Street | N/A | 4 | “Speeding traffic”  
“Signals not present / working”  
“Lack of ADA features”  
“Dangerous for blind people” |
| Intersection of Union Street and 13th Street (near park entrance) | N/A | 4 | “Speeding traffic”  
“No crosswalks”  
“Crosswalks not visible enough”  
“Signals not present / working” |

Please Note: *Public perceptions may differ from the actual conditions*
### Priority Locations

<table>
<thead>
<tr>
<th>Priority Locations (East-Side + West-Side Bangor Combined)</th>
<th>% High Priority</th>
<th>Rank</th>
<th>Participant Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harlow Street (State Street to Cumberland Street)</td>
<td>N/A</td>
<td>5</td>
<td>“Roads seem too wide”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Speeding traffic”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Roadway poorly lit”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Lack of ADA features”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Confusing intersection / many directions of turning traffic”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Ped signal too short”</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>“Drivers do not stop event when lights are on”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Library entrance is between crosswalks”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Poor visibility to left when turning onto Harlow St from Spring St.”</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>“Vehicles fail to stop at RRFB in front of library”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“No bike lanes”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Ped signal too infrequent”</td>
</tr>
</tbody>
</table>

*Figure 3: Bangor’s Priority Locations*

**Please Note:** Percent High Priority not available due to East and West side results being combined. Both East and West sides chose the same #3 priority location.

### Site Safety Review

Two site visits in Bangor occurred on September 19, 2017 and November 1, 2017 during which the identified priority locations were discussed using satellite photos, in-person visitation, and local expertise. The site visits included staff from the MaineDOT, BCM, and the municipality. Measurements and observations were made during the visits, and conversations regarding problems and possible solutions were held.

Notes from the meetings and recommendations are included in the Engineering / Infrastructure Section of this report.
Safer Walking Behavioral Forum

On July 18, 2018, 17 people, including Bangor residents plus staff from MaineDOT, BCM, and the city, participated in the **Safer Walking Behavioral Forum**. At this forum, participants reviewed the priority locations identified in the **Community Pedestrian Safety Forums**, as well as the behavioral issues (speeding, failure to yield, and other pedestrian actions) that were associated with each. The group was asked to prioritize the behaviors that they identified as most problematic on the part of drivers, bicycle riders (who often came up as problems), and pedestrians. Focused discussions explored potential education strategies and law enforcement efforts to improve behaviors. The forum included a call for local champions to advocate for and implement the proposed interventions.

The most problematic behaviors identified by Bangor residents at this forum were as follows:

- **Most Problematic Pedestrian Behavior**: Crossing at Unmarked Locations
- **Most Problematic Bicycle Behavior**: Ignoring Traffic Signs and Signals
- **Most Problematic Motorist Behavior**: Failure to Yield Right of Way

Recommendations from the **Safer Walking Forum** to address pedestrian and motorist behaviors are included in the Education and Enforcement Sections of this report.

Recommendations to address bicyclist behaviors were not discussed during the forum and therefore no recommendations have been included within this report. The problem behaviors of cyclists is only provided as a forum observation and could be useful for future mitigation efforts.
Bangor’s Recommendations

This report provides a series of recommendations based on the forums, site visits, examinations of aerial photos, reviews of existing plans, and conversations with stakeholders to improve pedestrian safety in Bangor. Please note that all recommendations are based upon current best practices and that all resources referenced and provided within the Appendices are current at the time this report was produced.

The recommendations in this plan are non-binding, but may drive Bangor’s development of new policies and procedures relating to the implementation of this report’s “Objectives” and “Potential Actions.” The implementation of recommendations throughout this report are dependent upon fiscal and staff resource limitations and will be driven by the project prioritization strategies of both MaineDOT and/or the City of Bangor.

The recommendations are organized according to the classic Safe Routes to School “5 E’s” model: Engineering, Education, Encouragement, Enforcement, and Evaluation. Sound engineering is essential to promote encouragement, must align with education, and is necessary to support enforcement efforts.

Recommendations are further organized into timeframes, with “Short Term” meaning <1+ year implementation window, “Medium Term” meaning 1-5+ year implementation window, and “Long Term” meaning a >5 year implementation window. Note that Short Term and Medium Term mitigations should not necessarily be abandoned after the implementation windows proposed here. Consideration for future implementation and their use should be a routine and on-going community conversation.
Engineering

The built environment is an important factor affecting roadway safety, as conditions on the ground will influence the behavior of all users. Historically, many roadways were designed for higher vehicle speeds and shorter travel times. Complete Streets Policies implemented by MaineDOT and many other communities attempt to address the needs of all roadway users by redesigning infrastructure where feasible to reduce vehicle speeds, accommodate bicyclists, and improve pedestrian safety and access.

General Considerations for All Locations

Implementation must be based upon engineering judgement and will be dependent upon the city’s priorities and any human and financial resource limitations experienced by either the City of Bangor or MaineDOT.

Short Term

- Continue to refresh crosswalk paint at least annually; use high visibility “piano key” or other highly visible style of crossings. (Review Appendix F – MaineDOT’s Striping Guidance for Municipalities for additional guidance)

- Install double-sided pedestrian signage (high intensity yellow or yellow / lime color is recommended) on both sides of non-signalized midblock crossings to alert drivers of the presence of crosswalks.

- Regularly check signal function and timing.

- Review Appendix B – MaineDOT’s Crosswalk Policy and Appendix C – MaineDOT Lane Width and Shoulder Width Engineering Instruction to ensure that future bicycle and pedestrian improvements comply with existing MaineDOT policies and guidance.

- Develop an ongoing BikePed Maintenance Plan designed to support the longer-term care of pedestrian and bicycle infrastructure. This plan should incorporate the city’s plans for winter maintenance of the sidewalk network as well as address long-term replacement / reconstruction strategies and the routine repair of such things as curbing, tip-downs, tactile warning devices, vegetation intrusion, etc.
To help ensure that pedestrian safety needs throughout the municipality are identified and considered, the City of Bangor would continue to benefit from the input of Bangor Walk-n-Roll, a citizen group dedicated to bike / ped issues, accessibility, and streetscape planning.

Implement a municipal policy which stipulates that all alterations to roadways and pedestrian ways will require that the impacted facilities be made ADA compliant to the maximum extent feasible and should comply with MaineDOT’s ADA Design Guidance for pedestrian facilities currently found here: mainedot.gov/civilrights/ada/.

Consider programming a leading pedestrian interval (LPI) phase at signalized intersections to reduce the number of potential conflicts between turning vehicles and crossing pedestrians. LPIs give pedestrians a chance to establish themselves in the crosswalk. They also improve driver yielding compliance because drivers see the pedestrians in the crosswalk and will wait until the pedestrian has cleared the lane into which the driver is turning.

Medium Term

The City of Bangor should formally adopt a local Complete Streets Policy to ensure transportation planning decisions in the city serve non-motorized users as well as motorized ones. Bangor’s Complete Streets Policy should explicitly define the cost threshold at which including robust facilities for walkers and persons riding bikes is not feasible. The Bicycle and Pedestrian Coalition of Maine encourages municipalities to consider incorporating bikeped facilities when doing so accounts for no more than 20% of a project’s total cost.

Upgrade all crossings to ensure compliance with the Americans with Disabilities Act of 1990 (ADA).

As appropriate, narrow travel lanes on roadways with posted speed limits of 30 mph or less to improve driver speed compliance and create additional opportunities and space for other bicycle and pedestrian improvements such as buffer zones, lighting, esplanades, curb extension, medians, etc. For additional guidance, see Appendix C – MaineDOT Lane Width and Shoulder Width Engineering Instruction.
● Review the information provided in Appendix E – MaineDOT Guidelines on Demonstration Projects and Non-Project Related Roadway Changes. Consider implementing demonstration projects to determine and validate the viability and value of implementing various pedestrian safety improvements within the community.

● Consider installing Rectangular Rapid Flashing Beacons (RRFBs) or other crossing improvements such as “Advance Yield” signage and pavement markings, use of leading pedestrian intervals (LPIs), and/or pedestrian refuge islands at critical crossings.

● Implement and enforce MaineDOT’s policy recommendation of a 20-foot minimum parking setback from all crosswalks.

● Since Context Sensitive Solutions and Practical Design are important tools as we create communities that are more pedestrian friendly, MaineDOT has developed guidelines for appropriate traffic calming strategies developed to reduce vehicle speeds, the alternatives that are available, and the limits of their acceptance and use on Maine Roadways. Before embarking on any traffic calming efforts in your community, review Appendix G – MaineDOT’s Traffic Calming Policy and discuss the alternatives (such as bump-outs, raised crosswalks, or median islands) with your MaineDOT Region Traffic Engineer and/or MaineDOT’s Active Transportation Planner.

● Review the potential pedestrian safety infrastructure improvements included within MaineDOT’s newly developed Pedestrian Safety Toolbox once it is released to the public. Identify opportunities within Bangor where new treatments could be incorporated.

**Long Term**

● Ensure traffic volumes and turning movements warrant channelized right turn lanes. Where warranted, ensure channelized right turn lanes are designed to draw attention to any pedestrians in crosswalks.

● Improve access management conditions throughout the city by narrowing large driveway entrances. Access management helps both drivers and pedestrians anticipate where motor vehicles will enter and exit businesses, and minimizes the number of conflict points between pedestrians, bicycles, and motor vehicles. Refer to Appendix H – Access Management Guidelines for more information and to determine which alternatives might be appropriate in a given situation.
● In general, retrofit in-city roadways with fewer, narrower travel lanes, to slow traffic and shorten pedestrian crossings.

● Consider lane reductions of 4 lane roads to 3 lanes with a continuous 2-way left-turn lane (Road Diets) and where appropriate, add bike lanes, pedestrian space, medians, esplanades, or other pedestrian improvements to the newly freed space. Review Appendix D – MaineDOT Road Diet Policy, to determine if roadways might be candidates for travel lane reduction as part MaineDOT’s statewide Road Diet efforts.

● Incorporate pedestrian safety needs into all projects while also considering the pedestrian needs of the area surrounding the proposed roadway or development project.

This report provides specific recommendations that may improve pedestrian safety at the 8 priority locations identified at Bangor’s two Community Pedestrian Safety Forums on August 9 and 16, 2017. Those locations are:

1) Broadway (I-95 / Center Street to Griffin Road / Burleigh Road)

2) Intersection of Hammond Street / 14th Street / Royal Road

3) Stillwater Avenue (I-95 overpass to Gilman Road / Home Depot area)

4) Maine Avenue / Odlin Road (I-395 to Vermont Avenue Roundabout)
5) 14th Street Extension from the Kenduskeag Stream on Valley Avenue to Ohio Street
6) Oak Street, State Street Bridge & Intersection with Washington Street
7) Intersection of Union Street and 13th Street (near park entrance)
8) Harlow Street (State Street to Cumberland Street)

Engineering recommendations were developed from information gathered during the Pedestrian Site Safety Review and are supplemented by recommendations referring to common and ongoing maintenance and construction efforts essential to maintain pedestrian safety.

All mitigation recommendations are based on the Federal Highway Administration’s (FHWA) Pedestrian Safety Guide and Countermeasure Selection System at pedbikesafe.org/PEDSAFE/. They comply with the Manual on Uniform Traffic Control Devices (MUTCD), and have been reviewed by both MaineDOT and the Federal Highway Administration. Please note that photographs provided in this report are intended to represent the referenced area of concern and do not necessarily include the entire scope of the recommendations provided, nor the entire area of identified and described concerns.
Specific Engineering Recommendations

Site #1: Broadway (I-95 / Center Street to Griffin Road / Burleigh Road)

NOTE: This area is a 1.5 mile corridor with up to five traffic lanes. Additional study and significant redesign may be needed to improve the pedestrian level of service.

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calm Turning Traffic</td>
<td>➢ Evaluate the appropriateness of utilizing flexible delineators to tighten the radius of intersection corners to slow turning vehicles</td>
<td></td>
<td>Short</td>
<td>MaineDOT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>City of Bangor</td>
<td></td>
</tr>
<tr>
<td>Objectives*</td>
<td>Potential Actions</td>
<td>Priority</td>
<td>Time Frame</td>
<td>Responsible Party</td>
<td>Current Status</td>
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</tr>
</tbody>
</table>
| Increase visibility of crosswalks | ➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)  
➢ Ensure that crosswalks are painted at least twice annually, with the first as early as possible in the spring  
➢ Continue to upgrade all crosswalks to have high visibility crosswalk markings (such as retroreflective beads in the paint, wet reflectivity, or a reflective thermoplastic film that meet MaineDOT Minimum Standards found in Appendix F)  
➢ Evaluate the appropriateness of utilizing flexible delineators on the white edge lines for some crosswalks in this area to create vertical friction that slows traffic and better defines where crosswalks are located  
➢ Evaluate the appropriateness of utilizing flexible delineators to create seasonal curb extensions to slow turning traffic, shorten crossings, and enhance visibility of pedestrians | Short    | City of Bangor  
MaineDOT | |
| Increase visibility of crosswalks | ➢ Evaluate current overhead lighting and consider upgrading to LEDs and expanding the number of luminaires | Medium   | City of Bangor  
MaineDOT | |
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| **Lane Reconfiguration / Narrowing to improve pedestrian safety** | ➢ Complete a traffic analysis of this intersection  
➢ Determine if traffic volumes and movements warrant existing lane configurations  
➢ Utilizing the *Lane Width and Shoulder Width Engineering Guidance* provided by MaineDOT ([Appendix C](#)), determine if lane widths can be narrowed to slow and calm traffic in the area south of Grandview Avenue  
➢ Determine if a two-way center turn lane could be implemented on outer Broadway beyond Grandview Avenue to improve turning movements and potentially create additional space for separation between modes and other pedestrian improvements | Medium | City of Bangor  
MaineDOT |  |
| **Reduce the number of conflicts between pedestrians and vehicles turning into or out of businesses** | ➢ To improve the predictability of vehicle turning movements, consider reducing the size of driveway openings and keep openings as far from the intersections / signals as possible ([Refer to Appendix H – Access Management Guidelines](#) for more information) | Medium | City of Bangor  
MaineDOT |  |
| **Calm Turning Traffic** | ➢ Close slip lane onto Center Street southbound as per city plan | Medium | City of Bangor  
MaineDOT |  |
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Improve safe pedestrian access | ➢ Consider extending sidewalk on the northeast side from Grandview Avenue north to Burleigh Road  
➢ Consider programming a leading pedestrian interval (LPI) phase at signalized intersections to reduce the number of potential conflicts between turning vehicles and crossing pedestrians | Medium |  | City of Bangor, MaineDOT |  |
| Add locations for safe crossing of Broadway especially north of Grandview Avenue | ➢ Complete traffic safety study  
➢ Consider adding ADA compliant landings and a crosswalk on the southern leg of the intersection with School Street  
➢ Consider adding ADA compliant landings and short sidewalk segments at Grandview Avenue, Hobart Street, and Griffin Road  
➢ Consider adding ADA compliant landings and short sidewalk segments for a crosswalk to join Dunkin’ Donuts and Leadbetter’s  
➢ Consider adding RRFBs at proposed crosswalks where no other signals exist | Medium |  | City of Bangor, MaineDOT |  |
| Increase visibility of crosswalks | ➢ Review MaineDOT’s Pedestrian Safety Toolbox once released and consider implementing pedestrian crossing improvements as recommended within the toolbox | Long |  | City of Bangor, MaineDOT |  |

*Objectives* are concepts generated through public process
Site #2: Intersection of Hammond Street / 14th Street / Royal Road

![Image of Site #2 - Intersection of Hammond Street / 14th Street / Royal Road]

**Figure 4: Site #2 – Intersection of Hammond Street / 14th Street / Royal Road**

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve sight lines of stopped vehicles on Royal Road</td>
<td>➢ Align stop bar on Royal Road to be parallel with the crosswalk</td>
<td></td>
<td>Short</td>
<td>City of Bangor</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Maine DOT</td>
<td></td>
</tr>
<tr>
<td>Objectives*</td>
<td>Potential Actions</td>
<td>Priority</td>
<td>Time Frame</td>
<td>Responsible Party</td>
<td>Current Status</td>
</tr>
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<td>------------------</td>
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</tr>
</tbody>
</table>
| Increase visibility of crosswalks | ➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)  
➢ Ensure that crosswalks are painted at least twice annually, with the first as early as possible in the spring  
➢ Continue to upgrade all crosswalks to have high visibility crosswalk markings (such as retroreflective beads in the paint, wet reflectivity, or a reflective thermoplastic film that meet MaineDOT Minimum Standards found in Appendix F)  
➢ Evaluate the appropriateness of utilizing flexible delineators on the white edge lines for some crosswalks in this area to create vertical friction that slows traffic and better defines where crosswalks are located  
➢ Install W11-2 double-sided pedestrian signage (high intensity yellow or yellow / lime color is recommended) on both sides of unsignalized midblock pedestrian crossings to alert drivers of the presence of crosswalks  
➢ Evaluate current overhead lighting and consider upgrading to LEDs and expanding the number of luminaires |          | Short      | City of Bangor | MaineDOT        |
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| **Shorten Crossing Distance** | ➢ Realign crosswalk on the east side of 14th Street to reduce skew and cross Hammond Street at closer to 90°  
➢ Consider installing seasonal curb extensions as a Gateway Treatment for traffic through this area | Medium | City of Bangor  
MaineDOT | | |
| **Lane reconfiguration / narrowing to slow traffic to improve pedestrian safety** | ➢ Complete a traffic analysis of this roadway corridor  
➢ Determine if traffic volumes and movements warrant existing lane configuration and number  
➢ Utilizing the *Lane Width and Shoulder Width Engineering Guidance* provided by MaineDOT (Appendix C), determine if lane widths can be narrowed to slow and calm traffic | Medium | City of Bangor  
MaineDOT | | |

*Objectives* are concepts generated through public process
Site #3: Stillwater Avenue (I-95 overpass to Gilman Road / Home Depot area)

Figure 5: Site #3 – Stillwater Avenue (I-95 overpass to Gilman Road / Home Depot area)

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve safe pedestrian access</td>
<td>➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)&lt;br&gt;➢ Consider adding a sidewalk on the west side of Stillwater Avenue at Kohl’s Plaza&lt;br&gt;➢ Consider programming a leading pedestrian interval (LPI) phase at signalized intersections to reduce the number of potential conflicts between turning vehicles and crossing pedestrians</td>
<td></td>
<td>Short</td>
<td>City of Bangor</td>
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<td>MaineDOT</td>
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<td>Objectives*</td>
<td>Potential Actions</td>
<td>Priority</td>
<td>Time Frame</td>
<td>Responsible Party</td>
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<tr>
<td><strong>Increase visibility of crosswalks</strong></td>
<td>➢ Ensure that crosswalks are painted at least twice annually, with the first as early as possible in the spring &lt;br&gt;➢ Continue to upgrade all crosswalks to have high visibility crosswalk markings (such as retroreflective beads in the paint, wet reflectivity, or a reflective thermoplastic film that meet MaineDOT Minimum Standards found in Appendix F) &lt;br&gt;➢ Evaluate the appropriateness of utilizing flexible delineators on the white edge lines for crosswalks in this area to create vertical friction that slows traffic and better defines where crosswalks are located</td>
<td>Short</td>
<td>City of Bangor</td>
<td>MaineDOT</td>
<td></td>
</tr>
<tr>
<td><strong>Lane reconfiguration / narrowing to slow traffic to improve pedestrian safety</strong></td>
<td>➢ Complete a traffic analysis of this roadway corridor &lt;br&gt;➢ Utilizing the <em>Lane Width and Shoulder Width Engineering Guidance</em> provided by MaineDOT (Appendix C), determine if lane widths can be narrowed to slow and calm traffic</td>
<td>Medium</td>
<td>City of Bangor</td>
<td>MaineDOT</td>
<td></td>
</tr>
<tr>
<td><strong>Add locations for safe crossings along corridor</strong></td>
<td>➢ Complete traffic safety study &lt;br&gt;➢ Consider providing a pedestrian refuge island to shorten the long (~162') crossing at the I-95 Ramp</td>
<td>Medium</td>
<td>City of Bangor</td>
<td>MaineDOT</td>
<td></td>
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<tr>
<td>Objectives*</td>
<td>Potential Actions</td>
<td>Priority</td>
<td>Time Frame</td>
<td>Responsible Party</td>
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</tr>
<tr>
<td>Calm Turning Traffic</td>
<td>➢ Complete a traffic analysis at the intersection of the Stillwater Avenue I-95 Ramp to include traffic volumes and turning movements</td>
<td>✔️</td>
<td>Medium</td>
<td>City of Bangor</td>
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<tr>
<td></td>
<td>➢ Utilizing a large vehicle turning template, determine if the turning radius at the end of the ramp could be tightened to slow turning traffic</td>
<td>✔️</td>
<td>Medium</td>
<td>MaineDOT</td>
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<td></td>
<td>➢ As a demonstration project, evaluate whether using flexible delineators to change the radius of the highway ramp to slow traffic and shorten the crossing could be feasible</td>
<td>✔️</td>
<td>Medium</td>
<td>City of Bangor</td>
<td></td>
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<tr>
<td></td>
<td>➢ Consider programming a leading pedestrian interval (LPI) phase at the signalized intersections to reduce the number of potential conflicts between turning vehicles and crossing pedestrians</td>
<td>✔️</td>
<td>Medium</td>
<td>MaineDOT</td>
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<td></td>
<td>➢ Evaluate the benefits of installing dotted center lines and/or turning lane lines (“Skippy-Do’s”) through the intersections to help guide turning traffic and help ensure vehicles remain within their lanes throughout their turns</td>
<td>✔️</td>
<td>Medium</td>
<td>City of Bangor</td>
<td></td>
</tr>
<tr>
<td>Objectives*</td>
<td>Potential Actions</td>
<td>Priority</td>
<td>Time Frame</td>
<td>Responsible Party</td>
<td>Current Status</td>
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</tr>
</tbody>
</table>
| Improve safe pedestrian access | ➢ Consider adding a sidewalk on the west side of Stillwater Avenue from Drew Lane to “The Avenue” across from the Bangor Mall Entrance  
➢ Consider adding a sidewalk on west side of Stillwater Avenue from “The Avenue” across from the Bangor Mall Entrance to the Home Depot Entrance  
➢ Consider adding a sidewalk on west side of Stillwater Avenue from the Home Depot Entrance to Penn Plaza  
➢ Consider adding a sidewalk on west side of Stillwater Avenue from Penn Plaza to the Stillwater Avenue / Hogan Road / Wal Mart Entrance Intersection |          | Long       | City of Bangor    |                |
|            |                                                                                                                                                                                                              |          |            | MaineDOT         |                |

*Objectives* are concepts generated through public process
Site #4: Maine Avenue / Odlin Road (I-395 to Vermont Avenue Roundabout)

Figure 6: Site #4 – Maine Avenue / Odlin Road (I-395 to Vermont Avenue Roundabout)

NOTE: This area is a 1.7 mile corridor with a variety of contexts and conditions. Additional study and significant redesign may be needed to raise the pedestrian level of service.

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shorten crossing distance</td>
<td>➢ Realign the crosswalk at the Cooperative Extension Service to reduce skew and cross Maine Avenue at closer to 90°</td>
<td></td>
<td>Short</td>
<td>City of Bangor</td>
<td></td>
</tr>
<tr>
<td>Install crosswalk signage</td>
<td>➢ Install W11-2 double-sided pedestrian signage (high intensity yellow or yellow / lime color is recommended) on both sides of unsignalized midblock pedestrian crossings to alert drivers of the presence of crosswalks</td>
<td></td>
<td>Short</td>
<td>City of Bangor</td>
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<td>Objectives*</td>
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</tbody>
</table>
| Increase visibility of crosswalks | ➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)
➢ Ensure that crosswalks are painted at least annually, as early as possible in the spring
➢ Continue to upgrade all crosswalks to have high visibility crosswalk markings (such as retroreflective beads in the paint, wet reflectivity, or a reflective thermoplastic film that meet MaineDOT Minimum Standards found in Appendix F)
➢ Evaluate the appropriateness of utilizing flexible delineators on the white edge lines for crosswalks in this area to create vertical friction that slows traffic and better defines where crosswalks are located | | Short | City of Bangor | |
<p>| Increase visibility of crosswalks | ➢ Evaluate current overhead lighting and consider upgrading to LEDs and expanding the number of luminaires | | Medium | City of Bangor | MaineDOT |</p>
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Improve safe pedestrian access | ➢ Study and consider adding sidewalks and crosswalks at appropriate locations throughout the length of the corridor  
➢ Consider adding a multiuse pathway over the old railbed near airport  
➢ Consider adding sidewalks and crosswalks within the Maine Business Enterprise Park  
➢ Consider extending sidewalks north of the roundabout | Medium   |            | City of Bangor  |                |
| Reduce the number of conflicts between pedestrians and vehicles turning into or out of businesses | ➢ To improve the predictability of vehicle turning movements, consider reducing the size of driveway openings and keep openings as far from the intersections / signals as possible  
(Refer to Appendix H – Access Management Guidelines for more information) | Medium   |            | City of Bangor  |                |

*Objectives* are concepts generated through public process
**Site #5: 14th Street Extension from the Kenduskeag Stream on Valley Avenue to Ohio Street**

![Figure 7: Site #5 – 14th Street Extension from the Kenduskeag Stream on Valley Avenue to Ohio Street](image)

**NOTE:** This area is designed with a highway-style of geometry and as a result is not generally suitable for low cost short-term fixes of the type this project is focusing. Additional study and significant redesign is needed to raise the pedestrian level of service.

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve intersection geometry</td>
<td>➢ Consider squaring and reducing radius of the intersection with Valley Avenue</td>
<td>Medium</td>
<td></td>
<td>City of Bangor</td>
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<td>Objectives*</td>
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<td>Time Frame</td>
<td>Responsible Party</td>
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</tbody>
</table>
| Create safe pedestrian access | ➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)
➢ Consider shifting the center line northward to create more shoulder on south side of 14<sup>th</sup> Street Extension
➢ Consider installing a sidewalk on the south side of 14<sup>th</sup> Street Extension
➢ Consider moving guardrail 6-8 ft towards the 14<sup>th</sup> Street Extension centerline and create a multiuse pathway on the north side
➢ Carry the multiuse pathway all the way up Valley Avenue, crossing Valley Avenue and linking to the Kenduskeag Path
➢ Consider a safe pedestrian crossing with RRFB across 14<sup>th</sup> Street Extension at the Valley Avenue Intersection
➢ Consider adding a new, formal, bikeped connection between Holland Street and 14<sup>th</sup> Street Extension | Medium   | City of Bangor | MaineDOT         |                |
<table>
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<tr>
<th>Objectives*</th>
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<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
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</thead>
<tbody>
<tr>
<td>Lane Reconfiguration / Narrowing to improve pedestrian safety</td>
<td>➢ Complete a traffic analysis of this area  ➢ Determine if traffic volume and movements warrant existing lane configuration  ➢ Consider dropping from 3 lanes to 2 lanes on 14th Street to provide space that could improve the multimodal capacity  ➢ Utilizing the <em>Lane Width and Shoulder Width Engineering Guidance</em> provided by MaineDOT (Appendix C), determine if lane widths can be narrowed to slow and calm traffic</td>
<td>Medium</td>
<td></td>
<td>City of Bangor</td>
<td>MaineDOT</td>
</tr>
</tbody>
</table>

*Objectives* are concepts generated through public process
Site #6: Oak Street, State Street Bridge & Intersection with Washington Street

![Image of Oak Street, State Street Bridge and the Intersection with Washington Street]

**Figure 8: Site #6 – Oak Street, State Street Bridge and the Intersection with Washington Street**

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install crosswalk signage for slip lane</td>
<td>➢ Install W11-2 pedestrian signage (high intensity yellow or yellow/lime color is recommended) on both sides of unsignalized midblock pedestrian crossings to alert drivers of the presence of crosswalks</td>
<td></td>
<td>Short</td>
<td>City of Bangor</td>
<td>MaineDOT</td>
</tr>
<tr>
<td>Objectives*</td>
<td>Potential Actions</td>
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</tbody>
</table>
| Increase visibility of crosswalks | ➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)  
➢ Ensure that crosswalks are painted at least twice annually, with the first as early as possible in the spring  
➢ Continue to upgrade all crosswalks to have high visibility crosswalk markings (such as retroreflective beads in the paint, wet reflectivity, or a reflective thermoplastic film that meet MaineDOT Minimum Standards found in Appendix F)  
➢ Evaluate the appropriateness of utilizing flexible delineators on the white and/or yellow edge lines for crosswalks in this area to create vertical friction that slows traffic and better defines where crosswalks are located |          | Short      | City of Bangor |                |
<p>|                             |                                                                                                                                                                                                                 |          |            | MaineDOT         |                |</p>
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Lane Reconfiguration / Narrowing to improve pedestrian safety by calming traffic, reclaiming excess capacity, and shorten crossing distances | ➢ Complete a traffic analysis of Hancock, Washington and State Streets within 500 feet of their intersections with Oak Street  
➢ Determine if traffic volumes and movements warrant existing lane configurations  
➢ Review MaineDOT's Traffic Calming Policy in Appendix G to help determine which traffic calming strategies might be feasible and appropriate in this area  
➢ Utilizing the *Lane Width and Shoulder Width Engineering Guidance* provided by MaineDOT (Appendix C), determine if lane widths can be narrowed to slow and calm traffic  
➢ Consider dropping from 3 lanes to 2 lanes on Oak Street southbound to create more multimodal capacity and to enable shorter crossings  
➢ Consider dropping from 3 lanes to 2 lanes on Hancock Street to create more multimodal capacity and to enable a shorter crossing at intersection with Oak Street  
➢ Consider dropping from 2 lanes to 1 lanes on Washington Street east of Oak Street to create more multimodal capacity  
➢ Consider narrowing slip lane from Oak Street to Washington Street to a single lane | Medium   | City of Bangor | MaineDOT         |                |
<table>
<thead>
<tr>
<th>Objectives*</th>
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<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Increase visibility of crosswalks | ➢ Evaluate current overhead lighting and consider upgrading to LEDs and expanding the number of luminaires  
➢ Consider programming a leading pedestrian interval (LPI) phase at signalized intersections to reduce the number of potential conflicts between turning vehicles and crossing pedestrians | Medium | Medium | City of Bangor | MaineDOT |
| Lane Reconfiguration / Narrowing to improve pedestrian safety by calming traffic, reclaiming excess capacity, and shortening crossing distances | ➢ Complete a traffic analysis of Hancock, Washington and State Streets within 500 feet of their intersections with Oak Street  
➢ Determine if traffic volumes and movements warrant existing lane configurations  
➢ Consider closing and reclaiming the slip lane from Oak Street to Washington Street for bicycles and pedestrians  
➢ Consider squaring intersection of Oak Street and Washington Street  
➢ Consider reusing reclaimed space from lane drops to add curb extensions at crossings of Oak, Hancock, and Washington Streets | Long | Long | City of Bangor | MaineDOT |

*Objectives* are concepts generated through public process
**Site #7: Intersection of Union Street and 13th Street (near park entrance)**

![Figure 9: Site #7 – Intersection of Union Street and 13th Street (near the park entrance)](image)

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install crosswalk signage</td>
<td>➢ Install W11-2 double-sided pedestrian signage (high intensity yellow or yellow / lime color is recommended) on both sides of unsignalized midblock pedestrian crossings to alert drivers of the presence of crosswalks</td>
<td></td>
<td>Short</td>
<td>City of Bangor</td>
<td></td>
</tr>
</tbody>
</table>
| Visually narrow travel lanes to calm traffic | ➢ Maintain edge line striping  
➢ Consider using flexible delineators on / near the stripes at crosswalks to visually narrow the travel lanes on Union Street |           | Short      | City of Bangor            |                |
<p>|                                                        |                                                                                                                                  |           |            | MaineDOT                 |                |</p>
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase visibility of crosswalks</td>
<td>➢ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)&lt;br&gt;➢ Ensure that crosswalks are painted at least annually, as early as possible in the spring&lt;br&gt;➢ Continue to upgrade all crosswalks to have high visibility crosswalk markings (such as retroreflective beads in the paint, wet reflectivity, or a reflective thermoplastic film that meet MaineDOT Minimum Standards found in Appendix F)&lt;br&gt;➢ Evaluate the appropriateness of utilizing flexible delineators on the white edge lines for crosswalks in this area to create vertical friction that slows traffic and better defines where crosswalks are located</td>
<td>Short</td>
<td>City of Bangor</td>
<td>MaineDOT</td>
<td></td>
</tr>
<tr>
<td>Increase visibility of crosswalks</td>
<td>➢ Evaluate current overhead lighting and consider upgrading to LEDs and expanding the number of luminaires</td>
<td>Medium</td>
<td>City of Bangor</td>
<td>MaineDOT</td>
<td></td>
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<tr>
<td>Objectives*</td>
<td>Potential Actions</td>
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</tbody>
</table>
| **Increase locations for safe crossing** | ➢ Complete a traffic analysis of this roadway segment  
➢ Consider adding crossings at Thomas Hill Road, Jackson Road, and/or Cottage Street  
➢ Consider adding a midblock crossing with an RRFB between Cottage Street and Jackson Road to meet with the path in the park | Medium | City of Bangor  
MaineDOT | |
| **Increase visibility of crosswalks** | ➢ Review MaineDOT’s *Pedestrian Safety Toolbox* once released and consider implementing pedestrian crossing improvements as recommended within the toolbox | Long | City of Bangor  
MaineDOT | |

*Objectives* are concepts generated through public process
**Site #8: Harlow Street (State Street to Cumberland Street)**

![Image of Harlow Street](image)

*Figure 10: Site #8 – Harlow Street (State Street to Cumberland Street)*

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Visually narrow travel lanes to calm traffic | ➢ Add long lines for parking lane delineation  
➢ Consider using flexible delineators on / near the stripes at crosswalks to narrow travel lanes | | Short | City of Bangor  
MaineDOT | |
| Install crosswalk signage | ➢ Install W11-2 double-sided pedestrian signage (high intensity yellow or yellow / lime color is recommended) on both sides of unsignalized midblock pedestrian crossings to alert drivers of the presence of crosswalks | | Short | City of Bangor  
MaineDOT | |
<table>
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<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Increase visibility of crosswalks | ✓ Complete a field review and a safety assessment to determine appropriate ped safety alternatives (signage, locations, sight distance, Accessible Pedestrian Signal, lighting, etc.)  
➢ Ensure that crosswalks are painted at least twice annually, with the first as early as possible in the spring  
➢ Continue to upgrade all crosswalks to have high visibility crosswalk markings (such as retroreflective beads in the paint, wet reflectivity, or a reflective thermoplastic film that meet MaineDOT Minimum Standards found in Appendix F)  
➢ Evaluate the appropriateness of utilizing flexible delineators on the white edge lines for crosswalks in this area to create vertical friction that slows traffic and better defines where crosswalks are located  
➢ Remove parking spots within 20 ft of the pedestrian crossing at Bangor Public Library  
➢ Consider installing a pedestrian bump out at the pedestrian crossing at the library where the RRFB is located | Short | City of Bangor  
MaineDOT |
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Shorten Crossings | ➢ Complete a traffic analysis of this intersection  
➢ Determine if traffic volumes and movements warrant existing lane configuration  
➢ Reclaim one left turn lane from State Street to Harlow Street and create a curb extension to shorten the crossing across State Street  
➢ Consider adding curb extensions on Center Street by City Hall to shorten the crossing to about 12 feet | Medium | City of Bangor  
MaineDOT | |
| Lane Reconfiguration / Narrowing to improve pedestrian safety and create human scale context | ➢ Complete a traffic analysis of this intersection  
➢ Determine if traffic volumes and movements warrant existing lane configuration  
➢ Close Park Street access to Harlow Street and reclaim space as a pocket park | Medium | City of Bangor  
MaineDOT | |
| Relocate crosswalk | ➢ Consider moving the midblock crossing from northwest of Spring Street to the intersection of Harlow and Spring Streets | Medium | City of Bangor  
MaineDOT | |
| Increase visibility of crosswalks | ➢ Review MaineDOT’s *Pedestrian Safety Toolbox* once released and consider implementing pedestrian crossing improvements as recommended within the toolbox | Long | City of Bangor  
MaineDOT | |

*Objectives* are concepts generated through public process
Education

Education is an essential component of pedestrian safety. According to Countermeasures that Work (2018), consistency and repetition in traffic safety educational efforts, coupled with real world practice, are critical for moving people from knowledge changes to behavioral changes, particularly with school-age populations. A need to better educate pedestrians and drivers on how to safely use Maine's roadways and traffic infrastructure was identified as a need in all 21 Focus Communities, including Bangor.

The most problematic pedestrian behaviors identified (by type) by Bangor residents at the Safer Walking Forum held on July 18, 2018 were as follows:

- **Most Problematic Pedestrian Behavior:** Crossing at Unmarked Locations
- **Most Problematic Motorist Behavior:** Failure to Yield Right of Way

Because driver and pedestrian safety education is a statewide need, we have also provided general education recommendations to address these common needs. Specific education recommendations to address problem behaviors were suggestions from community members participating in the Safer Walking Forum.
## Recommendations for all 21 Focus Communities

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
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<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Increase the number of local schools involved in free Safe Routes to School (SRTS) education programming offered by MaineDOT / BCM | ➢ Request information from the Bicycle Coalition of Maine (BCM) on the SRTS Program  
➢ Municipal and school leadership meet to discuss the benefits of participation  
➢ Request a BCM site visit to discuss participation in the program  
➢ Schedule an introductory SRTS event at a local school  
➢ Work to institutionalize traffic safety education as part of every student’s education |  | Short | City of Bangor  
Bangor School Department  
BCM |  |
| Provide Lunch and Learns to businesses, community organizations, and at public events to emphasize safe behavior | ➢ Work with BCM and MaineDOT to identify priority messaging  
➢ Develop a presentation outline for each priority message  
➢ Identify and train potential facilitators  
➢ Send informational materials on the Lunch and Learn Program to area businesses and community groups  
➢ Contact potential groups to schedule an event |  | Short | City of Bangor  
BCM  
MaineDOT |  |
<table>
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<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Consider “point of use” educational resources that would help people follow best practices for pedestrian behavior (e.g. midblock stencils reading “Use the Crosswalk!” or signs for drivers saying “Respect our Neighborhood, Slow Down” etc.) | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program | Short | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT | |
| Support additional walking school buses or “safety clubs” that also teach best practices to school children | ➢ Request information from the Bicycle Coalition of Maine (BCM) on the Walking School Bus Program  
➢ Municipal and school leadership meet to discuss the benefits of participation  
➢ Request a BCM site visit to discuss participation in the program  
➢ Schedule an introductory Walking School Bus event at a local school | Medium | City of Bangor  
Bangor School Department  
BCM | |
<table>
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<tr>
<th>Objectives*</th>
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<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Create an educational campaign directed toward adults | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program |  | Medium | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT |  |
| Create a local social marketing campaign using fliers, conventional media, and social media to educate the community about driving safely around vulnerable users | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program |  | Medium | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT |  |
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<th>Objectives*</th>
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<th>Current Status</th>
</tr>
</thead>
</table>
| Because 48% of all reported pedestrian crashes nationally involve drug and/or alcohol impairment of either the driver or the pedestrian, develop outreach materials and programs on the safety risks of impairment from drugs and alcohol use | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program | Medium | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT | |
| Create a local social marketing campaign using fliers, conventional media, and social media to educate the community on strategies for biking and walking safely | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program | Medium | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT | |
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<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Create a “Push the Button” campaign for the use of Rectangular Rapid Flashing Beacons | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify the target audience, how the content should be delivered, and the distribution strategy  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program | Medium | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT | |

Develop and coordinate a “Walk & Bike Brightly” campaign | ➢ Research existing Walk & Bike Brightly Campaigns including their strategies and content  
➢ Meet with BCM to learn about what they are doing in other Maine communities  
➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify potential target audiences and the potential delivery methods  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program | Medium | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT | |

*Objectives* are concepts generated through public process
### Recommendations for Crossing at Unmarked Locations

<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
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<th>Current Status</th>
</tr>
</thead>
</table>
| **Distribute safety information along with highly reflective and actively lit materials at Lunch and Learns, community events, in schools, etc.** | ➢ Obtain highly reflective and actively lit pedestrian safety materials from MaineDOT and BCM  
➢ Distribute safety information and materials at community events as appropriate, such as First Friday Artwalks, the Bangor State Fair, neighborhood associations, car dealerships, and other venues | | Short | City of Bangor, Bangor School Department, BCM, MaineDOT | |
| **Develop and provide presentations and resources to teach people about the safety benefits of safe crossing behaviors** | ➢ Work with BCM and MaineDOT to identify priority messaging content, including developing presentations / resources for a "stop, look and wave" social marketing campaign  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify local champions to help develop, implement, and promote the program, such as the Eastern Area Agency on Aging, the Bangor Public Health department, or the Bangor Walk-n-Roll Committee  
➢ Build local energy and support for the program | | Short | City of Bangor, Bangor Walk-n-Roll, BCM, MaineDOT | |
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
</table>
| Increase the number of local schools involved in free SRTS education programming offered by MaineDOT / BCM to teach them how and where to cross safely | ➢ Identify which K-8 Schools in the municipality are not currently participating in SRTS Programming  
➢ Request SRTS information and presentations from the Bicycle Coalition of Maine (BCM)  
➢ Work with BCM and MaineDOT to identify prioritized program areas  
➢ Share information and resources developed for the municipality during MaineDOT’s Heads Up Project  
➢ Identify potential target audiences and the potential delivery methods  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Convene a meeting between city staff and key school staff (principal, resource officer, physical education, school board, etc.) for all schools serving children in grades K-8 to discuss the benefits of participation  
➢ Invite BCM to provide a program overview and potential program activities during the meeting  
➢ Schedule an introductory SRTS event at a local school  
➢ Schedule at least one SRTS event per elementary / middle school annually |           | Short      | City of Bangor  
Bangor School Department  
BCM  
MaineDOT |
<table>
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<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
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</table>
| Use dynamic messaging boards to remind walkers to use reflective materials, to “stop, look and wave” before crossing, and remind drivers to slow down and watch out for pedestrians and other vulnerable users | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify various high-visibility locations within the municipality where the signs can be safely located  
➢ Consider “event based” targeted messaging such as for holidays and when school resumes | Priority | Time Frame | Responsible Party | Current Status |
<p>|             |                  |               | Short          | City of Bangor  |               |
|             |                  |               |                | Bangor Walk-n-Roll |               |
|             |                  |               |                | BCM             |               |
|             |                  |               |                | MaineDOT        |               |</p>
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<tr>
<td>Create a local social marketing campaign using dynamic messaging boards, fliers, conventional media, and social media to educate about pedestrians using safe crossing behaviors, being visible, and motorists slowing down and watching out for other users</td>
<td>➢ Work with BCM and MaineDOT to identify priority messaging content&lt;br&gt;➢ Identify which messages should be developed first, who the target audience will be, and which social media planform(s) to use to reach this audience&lt;br&gt;➢ Submit a regular column in the <em>Bangor Daily News</em> or other local newspapers&lt;br&gt;➢ Consider using a popular mascot as a spokesperson for crosswalk safety&lt;br&gt;➢ Explore the benefits and added value of utilizing a social media consultant</td>
<td>Medium</td>
<td>City of Bangor&lt;br&gt;Bangor Walk-n-Roll&lt;br&gt;BCM&lt;br&gt;MaineDOT</td>
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</table>
| **During warning stops, have police officers distribute educational materials developed by the Head’s Up Pedestrian Safety Project** | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, who the target audience will be, and under what situations the materials would be distributed  
➢ Obtain highly reflective and actively lit pedestrian safety materials from MaineDOT and BCM  
➢ Distribute select information and safety materials as appropriate  
➢ Build local energy and support for the program | Medium | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT |
| **Provide ongoing education on the importance of safe street crossing behaviors** | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify potential target audiences and the potential delivery methods  
➢ Identify which messages should be developed first and under what situations the materials would be distributed  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program | Long | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT |

*Objectives* are concepts generated through public process
## Recommendations for Failure to Yield Right of Way

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<th>Current Status</th>
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</thead>
</table>
| **Teach people of their duty to yield at marked crosswalks and to generally slow down and be attentive at Lunch and Learns, community events, in schools, etc.** | ➢ Work with BCM and MaineDOT to identify priority messaging  
➢ Develop a presentation outline for each priority message  
➢ Identify and train potential facilitators  
➢ Send informational materials on the Lunch and Learn Program to area businesses and community groups  
➢ Contact potential groups to schedule an event, e.g. Eastern Area Agency on Aging, local driving schools, Bangor Greendrinks, etc. |  | Short | City of Bangor  
Bangor Walk-n-Roll  
BCM | |
| **Use dynamic messaging boards to remind drivers of their duty to yield at marked crosswalks and to generally slow down, be attentive and watch out for pedestrians and other vulnerable users** | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➢ Identify various high-visibility locations within the municipality where the signs can be safely located  
➢ Consider “event based” targeted messaging such as for holidays and when school resumes |  | Short | City of Bangor  
Bangor Walk-n-Roll  
BCM | |
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</thead>
<tbody>
<tr>
<td>Create a local social marketing campaign using dynamic messaging boards, fliers, conventional media, and social media on the consequences of failing to yield</td>
<td>➢ Work with BCM and MaineDOT to identify priority messaging content  ➢ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  ➢ Identify local champions to help develop, implement, and promote the program  ➢ Build local energy and support for the program</td>
<td>Medium</td>
<td>City of Bangor</td>
<td>Bangor Walk-n-Roll</td>
<td>BCM</td>
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<tr>
<td>Create a “Bangor Waves” campaign encouraging peds and drivers to acknowledge seeing each other with a wave before crossing</td>
<td>➢ Work with BCM and MaineDOT to identify priority messaging content  ➢ Identify potential target audiences and the potential delivery methods  ➢ Identify local champions to help develop, implement, and promote the program  ➢ Build local energy and support for the program</td>
<td>Medium</td>
<td>City of Bangor</td>
<td>Bangor Walk-n-Roll</td>
<td>BCM</td>
</tr>
<tr>
<td>Create a “Phones Down - Heads Up” campaign to encourage people not to use phones while driving or walking</td>
<td>➢ Work with BCM and MaineDOT to identify priority messaging content  ➢ Identify potential target audiences and the potential delivery methods  ➢ Identify local champions to help develop, implement, and promote the program  ➢ Build local energy and support for the program</td>
<td>Medium</td>
<td>City of Bangor</td>
<td>Bangor Walk-n-Roll</td>
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</table>
| Provide ongoing education around failure to yield via road signs, ongoing educational campaigns at schools and worksites, etc. | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify potential target audiences and the potential delivery methods  
➢ Identify which messages should be developed first and under what situations the materials would be distributed  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program |         | Long       | City of Bangor  
Bangor School Department  
Bangor Walk-n-Roll  
BCM  
MaineDOT | |

*Objectives* are concepts generated through public process
Encouragement

The PL Jacobsen study published in the *Journal of Injury and Prevention* in 2003, concludes that where there are more people walking or bicycling, there are fewer crashes. This study, sometimes referred to as the “Safety in Numbers” study, suggests that encouragement activities to get more people walking (and biking) are important to promoting overall community safety, because the more people who are walking, the safer conditions become.

Encouragement activities can take many forms, and may include not only programmatic efforts (e.g. Walking School Buses), but also activities in the realms of policy and the built environment. Indeed they must go together - efforts to encourage people to walk in a built environment that is not supportive of pedestrian mobility are unlikely to change behavior.

**Recommendations for all 21 Focus Communities**

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<tbody>
<tr>
<td>sponsor Walk to School and Walk to Work Days</td>
<td>➢ Request <em>Walk to School / Walk to Work</em> information from the Bicycle Coalition of Maine (BCM) ➢ Identify local champions to help develop, implement, and promote the program ➢ Share information and resources developed for the municipality during MaineDOT’s Heads Up Project ➢ Convene a meeting of municipal staff and local champions to plan, schedule and deliver the event ➢ Schedule at least one event annually</td>
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<td>City of Bangor, Bangor School Department, Bangor Walk-n-Roll, BCM</td>
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</table>
| Get local schools more involved with MaineDOT’s / BCM’s free Safe Routes to School Program and its encouragement activities | ➢ Identify which K-8 Schools in the municipality are not currently participating in SRTS Programming  
➢ Request SRTS information from the Bicycle Coalition of Maine (BCM)  
➢ Work with BCM and MaineDOT to identify prioritized program areas  
➢ Share information and resources developed for the municipality during MaineDOT’s Heads Up Project  
➢ Identify potential target audiences and the potential delivery methods  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Convene a meeting between city staff and key school staff (principal, resource officer, physical education, school board, etc.) for all schools serving children in grades K-8 to discuss the benefits of participation  
➢ Invite BCM to provide a program overview and potential program activities during the meeting  
➢ Schedule an introductory SRTS event at a local school  
➢ Schedule at least one SRTS event per elementary / middle school annually |          | Short      | City of Bangor |                |
<p>|                                                                            |                                                                                                                                                                                                                  |          |            | Bangor School Department |                |
|                                                                            |                                                                                                                                                                                                                  |          |            | Bangor Walk-n-Roll |                |
|                                                                            |                                                                                                                                                                                                                  |          |            | BCM |                |
|                                                                            |                                                                                                                                                                                                                  |          |            | MaineDOT |                |</p>
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</table>
| To engage businesses, develop an outreach campaign with presentations and resources celebrating the benefits of more foot and bike traffic | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify potential target audiences and the potential delivery methods  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program  
➢ Deliver the program |          | Short      | City of Bangor |                |
|                                                                           |                                                                                                                                                    |          |            | Bangor Walk-n-Roll |                |
|                                                                           |                                                                                                                                                    |          |            | BCM              |                |
|                                                                           |                                                                                                                                                    |          |            | MaineDOT         |                |
| Sponsor “People in the Streets” events where a local street is open only to pedestrians | ➢ Request *People in the Streets* event information from the Bicycle Coalition of Maine (BCM)  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Share information and resources developed for the municipality during MaineDOT’s Heads Up Project  
➢ Convene a meeting of municipal staff and local champions to plan, schedule and deliver the event  
➢ Schedule at least one event annually |          | Medium     | City of Bangor |                |
<p>|                                                                           |                                                                                                                                                    |          |            | Bangor Walk-n-Roll |                |
|                                                                           |                                                                                                                                                    |          |            | BCM              |                |</p>
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</table>
| Create streetscapes that are more attractive and supportive of pedestrian use | ➢ Budget for a streetscape improvement planning project  
➢ Work with MaineDOT and BCM to identify potential locations and strategies to improve local streetscapes  
➢ Hire a consultant to develop streetscape improvement plan  
➢ Budget for the implementation of the recommendations developed during the streetscape improvement planning project  
➢ Implement at least one of the recommendations developed during the streetscape improvement planning process |          | Long       | City of Bangor  |                |
|                                                      |                                                                                                                                                                                                              |          |            | Bangor Walk-n-Roll|                |
|                                                      |                                                                                                                                                                                                              |          |            | BCM              |                |
|                                                      |                                                                                                                                                                                                              |          |            | MaineDOT         |                |

*Objectives* are concepts generated through public process
Enforcement

More enforcement of the laws governing the legal use of roads on the part of pedestrians and drivers was identified as a need in all 21 Focus Communities, including Bangor.

According to the 2014 National Highway Transportation Safety Administration (NHTSA) publication *Pedestrian Safety Enforcement Operations: A How To Guide*, “Enforcement of pedestrian safety laws has typically been minimal, even though compliance with these laws is low.” Increased enforcement activity may improve the behavior of both drivers and pedestrians.

Enforcement recommendations address common enforcement opportunities in all communities. Specific enforcement recommendations are community suggestions that address problem behaviors identified at the *Safer Walking Forum*.

The most problematic behaviors for pedestrians identified (by type) by Bangor residents at the *Safer Walking Forum* held on June 6, 2018 were as follows:

- **Most Problematic Pedestrian Behavior**: Crossing at Unmarked Locations
- **Most Problematic Motorist Behavior**: Failure to Yield Right of Way
## Recommendations for all 21 Focus Communities

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</table>
| **Utilize Maine Bureau of Highway Safety grant funding to enhance enforcement of pedestrian crossing laws** | ➤ Identify the problems / challenges and define why pedestrian crossing laws need additional enforcement within the local community  
➤ Develop a local intervention strategy to address the issues  
➤ Refine and clarify the program’s goals and objectives  
➤ Develop an implementation timeline  
➤ Determine the municipality’s strategy for evaluating the effectiveness of this intervention strategy  
➤ Develop a budget for strategy implementation  
➤ Apply annually for BHS Pedestrian Safety Grant Funding  
➤ Update information as needed, but at least annually |          | Short      | City of Bangor  
BCM  
Bureau of Highway Safety | |
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</table>
| Use dynamic messaging boards to remind drivers to put down their phones, slow down and watch out for pedestrians and other vulnerable users | ➢ Work with BCM and MaineDOT to identify priority messaging content  
➢ Identify potential target audiences and the potential delivery methods  
➢ Identify local champions to help develop, implement, and promote the program  
➢ Build local energy and support for the program | | Short | City of Bangor  
BCM  
MaineDOT | |
| Utilize Maine Bureau of Highway Safety (BHS) grant funding to enhance enforcement of distracted driving laws in support of vulnerable user safety | ➢ Fully define the Distracted Driving Problem within the local community and develop a local intervention strategy to address the issues  
➢ Refine and clarify the program’s goals and objectives  
➢ Develop an implementation timeline  
➢ Determine the municipality’s strategy for evaluating the effectiveness of this intervention strategy  
➢ Develop a budget for strategy implementation  
➢ Apply annually for BHS Distracted Driving Grant Funding  
➢ Update information as needed, but at least annually | | Short | City of Bangor  
BCM  
Bureau of Highway Safety  
MaineDOT | |
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</table>
| Law enforcement will distribute appropriate state-wide resources developed by the *Heads Up Pedestrian Safety Project* | ➢ Identify which resources developed by the community, MaineDOT, and/or BCM would be appropriate for law enforcement to distribute and under what circumstances  
➢ Identify if the municipality would like to implement a seasonal or thematic calendar where specific issues are highlighted at different times of the year and develop if appropriate  
➢ Develop a local policy that outlines the appropriate times and circumstances when it would be appropriate for an officer to distribute each resource item  
➢ Ensure that adequate materials and resources are printed and available to every officer |          | Short      | City of Bangor  
BCM  
Bureau of Highway Safety  
MaineDOT |                       |
| Continue to investigate all reports of aggressive or negligent motor vehicle operation | ➢ Create and promote a process for community members to report concerns on motor vehicle operation  
➢ Validate and prioritize all reports received  
➢ Investigate all reports |          | Short      | City of Bangor |                       |
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</table>
| Utilize Maine Bureau of Highway Safety grant funding to enhance enforcement of pedestrian and bicycle laws | ➢ Identify the problems / challenges and define why pedestrian and bicycle laws need additional enforcement within the local community  
➢ Develop a local intervention strategy to address the issues  
➢ Refine and clarify the program’s goals and objectives  
➢ Develop an implementation timeline  
➢ Determine the municipality’s strategy for evaluating the effectiveness of this intervention strategy  
➢ Develop a budget for strategy implementation  
➢ Apply annually for BHS Pedestrian Safety Grant Funding  
➢ Update information as needed, but at least annually | Short | City of Bangor  
BCM  
Bureau of Highway Safety |
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<th>Current Status</th>
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</table>
| Develop and distribute ongoing community specific resources appropriate for distribution by law enforcement | ➢ Identify which community specific resources would be appropriate for law enforcement to distribute and under what circumstances  
➤ Work with BCM and MaineDOT to identify community specific priority messaging content  
➤ Identify which messages should be developed first, how they should be delivered, and who the target audience will be  
➤ Identify if the municipality would like to implement a seasonal or thematic calendar where specific issues are highlighted at different times of the year and develop if appropriate  
➤ Develop a local policy that outlines the appropriate times and circumstances when it would be appropriate for an officer to distribute each resource item  
➤ Ensure that adequate materials and resources are printed and available to every officer | Medium   | City of Bangor | BCM               | MaineDOT       |
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</table>
| Make enforcement of laws protecting vulnerable users a departmental / municipal priority | ➢ Provide BCM vulnerable user in-service training to every member of the municipal police department  
➢ Encourage officers to more regularly enforce vulnerable user laws through stops, citations, and warnings  
➢ Ensure that all crashes involving pedestrians include detailed and specific crash information  
➢ Ensure that vulnerable user laws are enforced across all user groups (bicyclists, pedestrians, drivers)  
➢ Raise local awareness of the municipality’s enhanced enforcement strategy through the local media, print, and social media outreach efforts | Medium | City of Bangor  
BCM | |

*Objectives* are concepts generated through public process
# Recommendations for Crossing at Unmarked Locations

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</table>
| More consistently enforce existing pedestrian laws | ➢ Assign more officers to bike or foot patrol downtown to enable community policing and education  
➢ As defined by state law, conduct enforcement operations targeting pedestrians who fail to yield to vehicular traffic at unmarked locations | Short | City of Bangor  
BCM | |
| Improve Pedestrian Visibility – Have police officers provide reflective materials provided by the *Heads Up Pedestrian Safety Project* to persons walking after dark | ➢ Identify which resources (reflective strips or slap-bands) would be appropriate for law enforcement to distribute and under what circumstances  
➢ Develop a local policy that outlines the appropriate times and circumstances when it would be appropriate for an officer to distribute each resource item  
➢ Request highly-reflective materials from MaineDOT  
➢ Ensure that adequate materials and resources are available to every officer | Short | City of Bangor  
BCM  
Bureau of Highway Safety  
MaineDOT | |
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<th>Current Status</th>
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</table>
| Have police officers conduct community education sessions at schools and worksites on pedestrian safety, emphasizing the relative safety of marked locations | ➢ Work with BCM and MaineDOT to identify priority messaging  
➢ Develop a presentation outline for each priority message  
➢ Identify and train officers to be potential facilitators  
➢ Send informational materials on the program to area businesses, schools, and community groups  
➢ Contact potential groups to schedule an event | Medium   | City of Bangor | BCM                | MaineDOT       |

Objectives* are concepts generated through public process
## Recommendations for Failure to Yield Right of Way

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</table>
| Improve compliance with state law requiring drivers to yield to pedestrians in marked crosswalks | ➢ Conduct periodic driver compliance tests using plain-clothed officers and issue summons as appropriate  
➢ Publish reminders in press and on social media channels concerning drivers’ obligations to yield to pedestrians in marked crosswalks                                                                                                                                                                                                 |          | Short      | City of Bangor  
Bangor Walk-n-Roll  
BCM  
MaineDOT |            |
| Track all warnings and citations issued during traffic stops to identify chronic offenders | ➢ Develop a local policy guiding the process for collecting and tracking all warnings and citations for failure to yield drivers  
➢ Determine the local threshold for determining when a driver is classified as a “chronic offender” and what local actions will be taken  
➢ Raise local awareness of the municipality’s enhanced enforcement strategy through the local media, print, and social media outreach efforts                                                                                                                                   | Medium   |            | City of Bangor          |            |
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</table>
| Conduct sustained, high visibility enforcement operations for drivers failing to yield at crosswalks | ➢ Fully define the “Failure to Yield” problem within the local community and develop a local intervention strategy to address the issues  
➢ Develop a local policy guiding high visibility enforcement operations on drivers failing to yield at crosswalks  
➢ Refine and clarify the program’s goals, objectives and metrics  
➢ Develop an implementation strategy and timeline  
➢ Determine the municipality’s strategy for evaluating the effectiveness of this intervention strategy  
➢ Develop a budget for strategy implementation  
➢ Apply annually for BHS Vulnerable User Safety Enforcement grants, as available  
➢ Raise local awareness of the municipality’s enhanced enforcement strategy through the local media, print, and social media outreach efforts | Medium   | City of Bangor  | BCM Bureau of Highway Safety |  |
Evaluation

Evaluation of the impact of the mitigation recommendations above can be measured most tangibly in reductions in the frequency and severity of pedestrian crashes.

Recommendations for all 21 Focus Communities

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<tbody>
<tr>
<td>Regularly administer Pedestrian Safety Surveys to community members to track safety knowledge and behaviors over time</td>
<td>➢ Work with BCM and MaineDOT to create an appropriate Pedestrian Safety Survey Instrument that will remain valid over time</td>
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<td>City of Bangor</td>
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</tr>
</tbody>
</table>
| Count the number of short-term measures implemented                       | ➢ The municipality will have partially met standard expectation by implementing (within 1 year of receiving this report) at least 1 short-term measure in at least half of all sections  
➢ The municipality will have met the minimum standard expectation by implementing (within 1 year of receiving this report) at least 1 short-term measure per section  
➢ The municipality will have exceeded the standard expectation by implementing (within 1 year of receiving this report) at least 2 short-term measures per section |          | Short      | City of Bangor  | BCM            | MaineDOT |
<table>
<thead>
<tr>
<th>Objectives*</th>
<th>Potential Actions</th>
<th>Priority</th>
<th>Time Frame</th>
<th>Responsible Party</th>
<th>Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track the frequency, severity, and causal factors of pedestrian crashes city wide</td>
<td>➢ Annually utilize existing pedestrian crash data (MaineDOT and local) to identify locations, frequency, severity, and causal factors of all pedestrian crashes for the previous 5 years (such as 2015-2020)</td>
<td></td>
<td></td>
<td>BCM</td>
<td>Short</td>
</tr>
<tr>
<td></td>
<td>➢ Track the number, severity, and causal factors of all pedestrian crashes within the municipality</td>
<td></td>
<td></td>
<td>MaineDOT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Annually compare and evaluate all pedestrian crashes within the community with those experienced during the current 5-year period such as 2015-2020</td>
<td></td>
<td></td>
<td>City of Bangor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>➢ Evaluate the frequency, severity and causal factors of pedestrian crashes at all locations prioritized by the community during the Heads Up Pedestrian Safety Forums</td>
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<tr>
<td></td>
<td>➢ Evaluate the frequency, severity and causal factors of pedestrian crashes at all locations with more than one pedestrian crash after January 1, 2018</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>➢ Request MaineDOT and the Bicycle Coalition of Maine complete an updated Site Safety Review of all locations with multiple pedestrian crashes or recurrent causal factors</td>
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</tr>
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| Trend line reduction for the frequency and severity of pedestrian crashes city wide and at the locations prioritized by the community | ➢ Utilize existing pedestrian crash data (MaineDOT and local) to identify locations, frequency, severity, and causal factors of all pedestrian crashes for the previous 5 years (such as 2015-2020)  
➢ Track the number, severity, and causal factors of all pedestrian crashes within the municipality  
➢ Annually compare and evaluate all pedestrian crashes within the community with those experienced during the 2015-2020 5-year period  
➢ Evaluate the frequency, severity and causal factors of pedestrian crashes at all locations prioritized by the community during the Heads Up Pedestrian Safety Forums  
➢ Determine annually the community’s 5-year trend line for all pedestrian crashes and for those at the locations prioritized by the community | Medium   | City of Bangor  
BCM  
MaineDOT |
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</table>
| Count number of medium-term measures implemented | ➢ The municipality will have partially met standard expectation by implementing (within 5 years of receiving this report) at least 1 medium-term measure in at least half of all sections  
➢ The municipality will have met the minimum standard expectation by implementing (within 5 years of receiving this report) at least 1 medium-term measure per section  
➢ The municipality will have exceeded the standard expectation by implementing (within 5 years of receiving this report) at least 2 medium-term measures per section | Medium |  | City of Bangor | BCM  
MaineDOT |
| Count number of long-term measures implemented | ➢ The municipality will have partially met standard expectation by implementing (within 10 years of receiving this report) at least 1 long-term measure in at least half of all sections  
➢ The municipality will have met the minimum standard expectation by implementing (within 10 years of receiving this report) at least 1 long-term measure per section  
➢ The municipality will have exceeded the standard expectation by implementing (within 10 years of receiving this report) at least 2 long-term measures per section | Long |  | City of Bangor | BCM  
MaineDOT |
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<tr>
<td>Trend line reduction for the frequency and severity of pedestrian crashes city wide and at the locations prioritized by the community</td>
<td>➢ Utilize existing pedestrian crash data (MaineDOT and local) to identify locations, frequency, severity, and causal factors of all pedestrian crashes for the previous 5 years (such as 2015-2020)  ➢ Track the number, severity, and causal factors of all pedestrian crashes within the municipality  ➢ Annually compare and evaluate all pedestrian crashes within the community with those experienced during the 2015-2020 5-year period  ➢ Evaluate the frequency, severity and causal factors of pedestrian crashes at all locations prioritized by the community during the <em>Heads Up Pedestrian Safety Forums</em>  ➢ Determine annually the community’s 10-year trend line for all pedestrian crashes and for those at the locations prioritized by the community</td>
<td>Long</td>
<td>City of Bangor</td>
<td>BCM</td>
<td>MaineDOT</td>
</tr>
</tbody>
</table>

*Objectives* are concepts generated through public process
Works Cited

