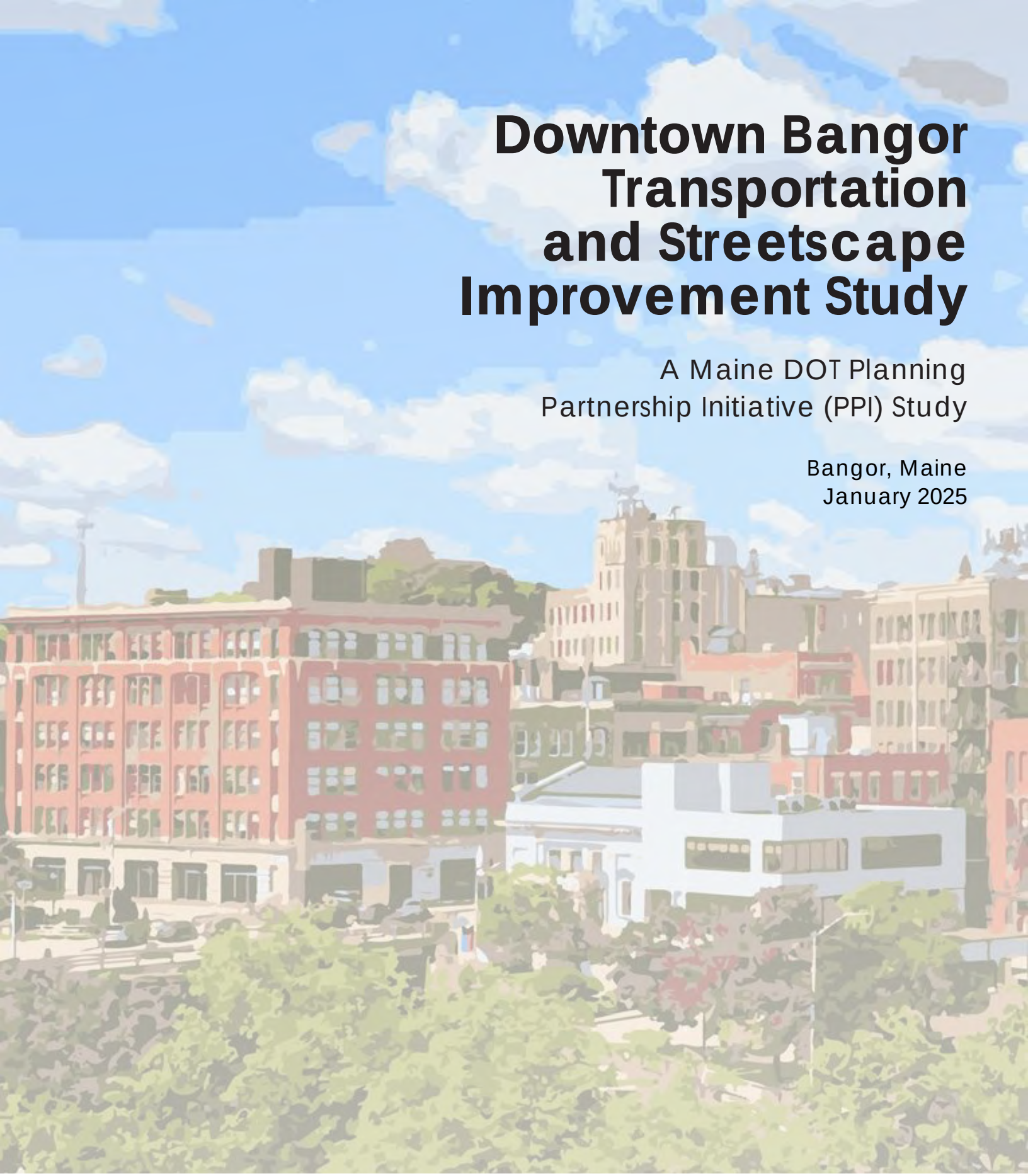
Downtown Bangor Transportation and Streetscape Improvement Study

A Maine DOT Planning Partnership Initiative (PPI) Study

Bangor, Maine
January 2025



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The following report was developed and supported by the following partners:

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EXECUTIVE SUMMARY

This report summarizes the Transportation Planning Partnership Initiative (PPI) Study performed for the City of Bangor, Bangor Area Comprehensive Transportation System (BACTS), and the Maine Department of Transportation (MaineDOT). The Sewall Team, comprised of Sewall and Viewshed, was retained by the City of Bangor in October of 2023 to assist with this comprehensive review of all transportation modes served in the downtown study area.

The first four chapters of this report describe the study process, the study area, existing conditions, traffic volumes, safety reviews and parking analysis. These efforts culminate in chapter five, which provides detailed recommendations for improvements. The work is supported by five appendices which provide additional technical information, community engagement survey results, and detailed cost estimation.

The recommended improvements detailed are summarized below:

Intersection Improvements

- **Shorter pedestrian crossings**. Wherever possible, we have recommended extending curb lines at intersection corners and mid-walk cross walks to create bump outs and limit the distance required for pedestrians to cross the roadway. Additionally, this improves pedestrian sight distance around parked vehicles.
- **Rectangular Rapid Flashing Beacons (RRFB)**. At mid-block crosswalk locations we have recommended both RRFB assisted crossings to alert drivers to a pedestrian ready to cross, as well as raised crosswalks to assist in traffic calming.
- **Roundabouts**. Roundabouts significantly reduce the number of conflict points and have been proven to reduce the number and severity of crashes. Many considerations are discussed within this report, but the addition of roundabout in downtown is a popular recommendation worth considering.

Kenduskeag Stream in downtown Bangor (source: Getty Images)

Street Improvements

- **Traffic Calming**. Many traffic calming elements are embedded in the recommendations of this report. Particularly, narrowing of vehicular lane widths, installation of raised crosswalks, installation of speed feedback signs and removal of angled parking.
- **Parallel Parking**. Parallel parking is uniformly recommended for all on street parking. It is proven to be safer than angled parking and is a known traffic calming measure.
- **Bike Lanes**. The recommendations of this report seek to create a cohesive bicycle infrastructure throughout the downtown for bicyclists of all ability levels.
- **Sidewalks**. It is imperative that sidewalks are ADA compliant and allow for the safe movement of pedestrians. Additionally, a uniform sidewalk material to create a cohesive downtown aesthetic is discussed.
- **Two-way traffic**. The potential of converting the "circular core" of State/Hammond/Central streets from one-way to two-way would encourage slower vehicle speeds and reinforce downtown Bangor as the destination rather than the route to the destination.

Pedestrian Space Enhancements

- **Shared Plaza**. The recommendation to create a shared plaza, or "Woonerf" along Broad Street and Merchant's plaza, while removing the traffic signal at Broad & Main emphasizes the Committee's dedication to create a walkable downtown that is inviting to all modes of transportation.
- **Waterfront Park.** The addition of a waterfront park at Kenduskeag Plaza West creates an opportunity to embrace the tranquility of the Kenduskeag Stream while creating a buffer for flooding and reducing the amount of impermeable pavement.

Broad Street and West Market Square

Chapter 1

INTRODUCTION

This report summarizes the Transportation Planning Partnership Initiative (PPI) Study performed for the City of Bangor, the Bangor Area Comprehensive Transportation System (BACTS) and the Maine Department of Transportation (MaineDOT). The Sewall Team, comprised of engineers at Sewall and landscape architects at Viewshed, was retained by the City of Bangor in October of 2023 to assist with this comprehensive review of all transportation modes served in the downtown village study area.

STUDY COMMITTEE

The study was led by individuals from the City of Bangor, the Bangor Area Comprehensive Transportation System (BACTS), and the MaineDOT. This Committee, is comprised of the following members:

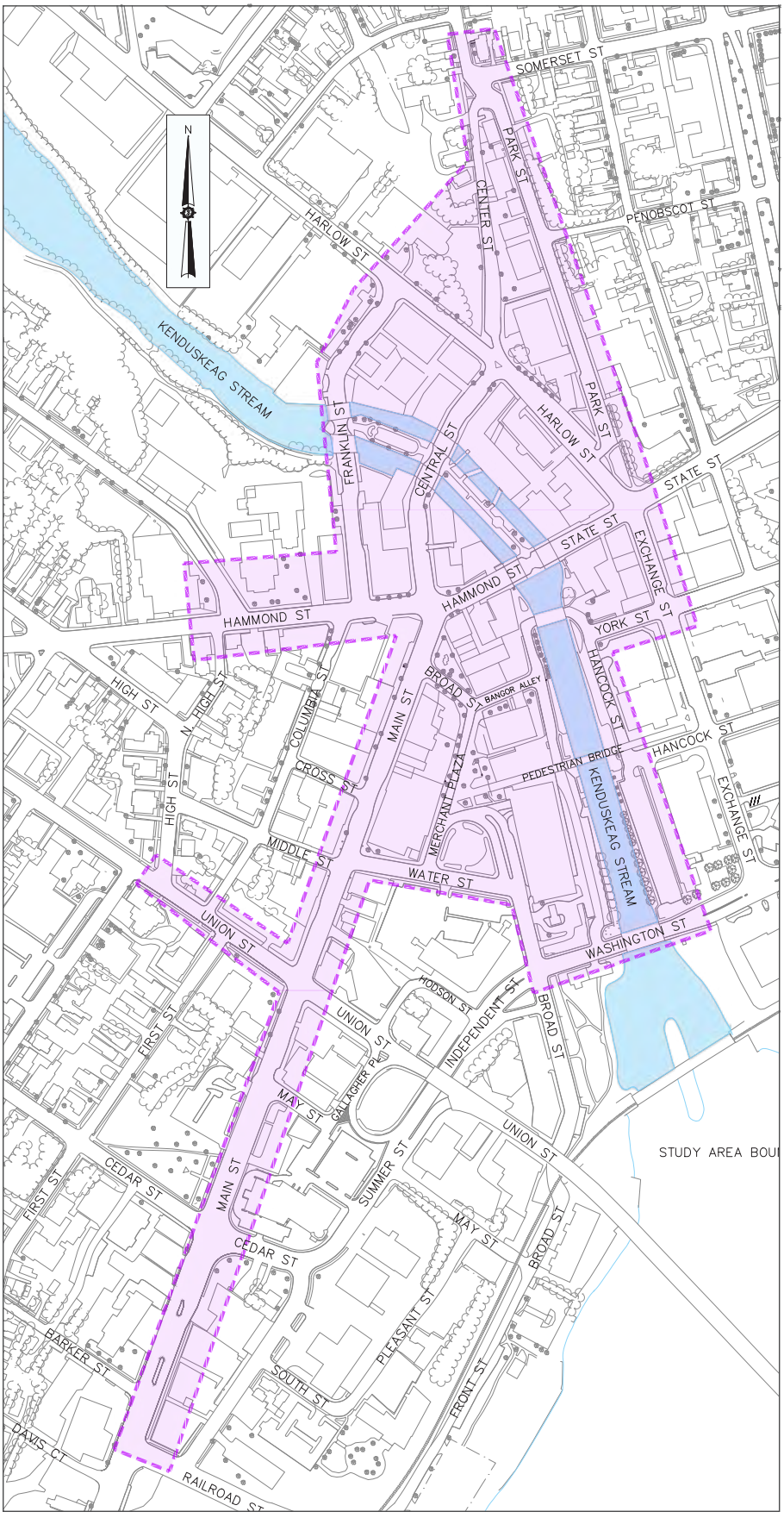
- Anne Krieg – Director of Community & Economic Development
- Jefferson Davis – Director of Engineering
- Madeline Jensen – BACTS Planner
- Jarod Farn-Guillette – MaineDOT Regional Planner
- Claire Winter – MaineDOT Urban Planner
- John Theriault – MaineDOT Region 4 Traffic Engineer

Sewall and Viewshed wish to express their gratitude to the above individuals for their invaluable assistance in this study. The local knowledge and visions shared were key to the development of the recommended improvement plans.

STUDY AREA

The study area is identified on the map on the next page and includes the following streets.

- **Center Street** – Harlow Street to Somerset Street
- **Park Street** – Harlow Street to Somerset Street
- **Harlow Street** – Franklin Street to State Street
- **Franklin Street**
- **Central Street**
- **Hammond Street** – North High Street to State Street transition
- **State Street** – Hammond Street transition to Exchange Street
- **Exchange Street** – State Street to York Street
- **Main Street** – Railroad Street to Hammond Street
- **Union Street** – High Street to Main Street
- **Broad Street** – Water Street to Washington Street
- **Merchants Plaza**
- **Water Street**
- **York Street**
- **Kenduskeag Plaza East and West**



Study Area Map
Purple denotes boundaries of the study area

STUDY PURPOSE

The Committee adopted the following purpose and need to guide the study:

Downtown Bangor has recently undergone several localized improvements focused on enhancing the infrastructure and functionality for daily users. However, a comprehensive study focused on the overall circulation of vehicular, pedestrian, and bicycle traffic throughout the downtown area is needed to make the area feel more cohesive and easier to navigate into and out of. The ability to draw pedestrians into the downtown district from neighboring areas and make them feel safe to walk or bike to local businesses is a major consideration for this project. Traffic calming measures along Main, Harlow, Hammond, State, and Central Streets will help pedestrians and bicyclists feel safe and seen by vehicular traffic. Connections to the existing Transit Center, Riverwalk, and waterfront parks would promote non-vehicular connectivity to the rest of Bangor and neighboring towns. The revitalization of the existing Riverwalk parks would breathe new life into the downtown, providing more space for community accommodations and events. Consistent sidewalk materials would provide a cohesive theme to the downtown district, honoring Bangor's historic character and natural beauty.

The Committee also identified areas of concern and project goals for the study:

Study Area Issues

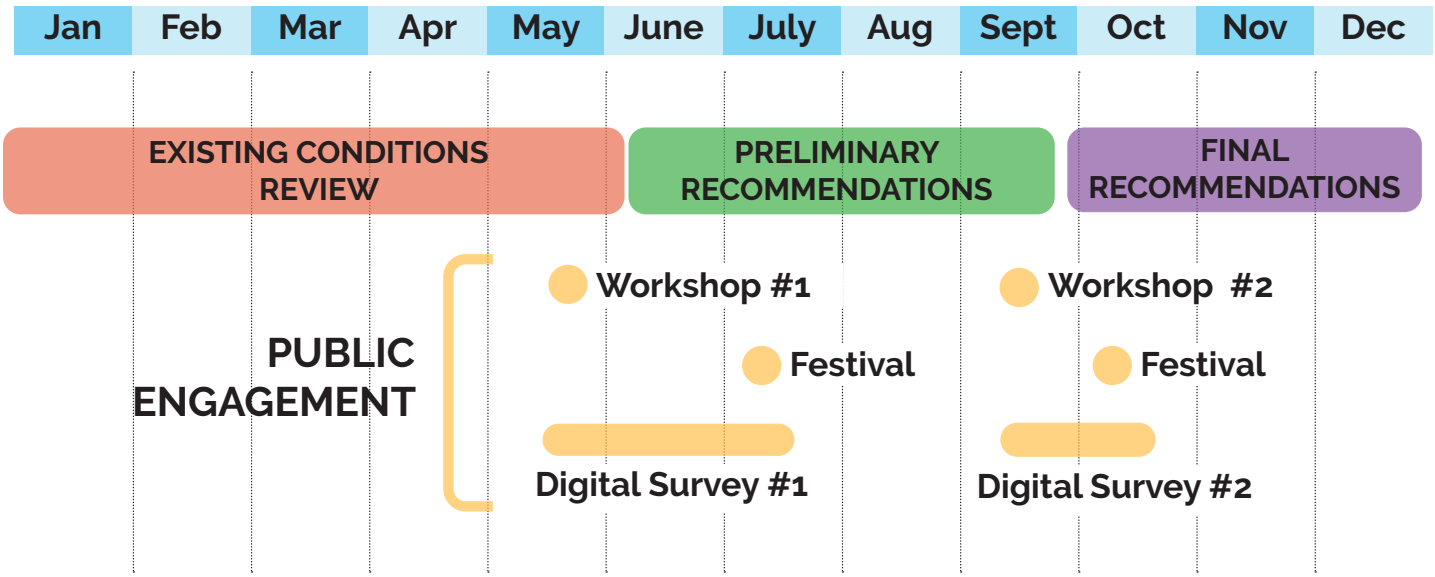
- Lack of pedestrian accommodations
- Lack of bicycle routes throughout the downtown area
- Parking constraints
- Restricted vehicular movements

Project Goals

- Improve safety and accessibility connections for all users
- Preserve the unique character of downtown
- Encourage public input and involvement
- Improve traffic signal timings / traffic volume issues
- Improve connections to Transit Center

STUDY PROCESS

The study took just over one year to complete, between November 2023 and January 2025. The study process included regular meetings with the Committee, a traffic and safety analysis, engineering concept development, and engagement with the public to collect feedback about the study area and design recommendations.



Committee Meetings

Committee meetings with the Committee and Sewall Team were held throughout the study process to review existing conditions, plan for public engagement, review analysis findings, and discuss study recommendations. The meetings were held on the following dates:

- October 26, 2023 – In-person
- December 15, 2023 – Site Visit
- February 15, 2024 – In-person
- March 25, 2024 – Virtual
- April 11, 2024 – Virtual
- May 10, 2024 – Hybrid
- August 2, 2024 – Virtual
- August 28, 2024 – Virtual
- September 9, 2024 – Virtual
- September 12, 2024 – In-person
- September 17, 2024 – Virtual
- December 10, 2024 – Hybrid

Public Engagement

The approach to public engagement and feedback collection relied on both in-person and digital engagement throughout the study process. The in-person events and digital feedback tools were designed to mirror each other, so if one was unable to attend an in-person event, they could provide the same feedback online as an alternative. The hybrid approach to public engagement (including both in-person / digital outreach) also allowed the Committee to reach a broader audience and increase the accessibility of the public engagement work. In addition to direct outreach through digital surveys and in-person events, a project website was maintained to provide the public with basic information about the study and process. This website also served as an access point for community surveys and digital engagement.

The public engagement occurred in two rounds, reflecting the different stages in the study process. The two engagement rounds are summarized below. A detailed description of the engagement process and findings is presented in Chapter 2.

- **Existing Conditions Inventory + Analysis.** This round of engagement took place in early summer 2024, and asked participants to share issues and ideas about the study area. This included a public workshop, digital survey, and an informational booth at the July Sidewalk Arts Festival.
- **Preliminary Recommendations.** This round of engagement took place in autumn 2024, and asked participants to vote for and provide feedback on an initial round of design concepts. This included a public workshop, digital survey, and an informational booth at the October Sidewalk Arts Festival.

Inventory + Analysis

The Sewall Team conducted a complete inventory of the study area to establish a baseline understanding of the issues and potential opportunities. This work included site visits, observations, and photography throughout the study area, including traffic counts and an inventory of on-street parking spaces. The Traffic and Safety Analyses included an inventory of physical roadway characteristics, crash data, existing traffic volumes, a parking study, existing intersection capacity analysis and future capacity analysis to determine the viability of design concepts. The results of this work are provided in Chapter 3 and supporting technical information is in Appendix A. Non-motorized movement and opportunities within the study area were also analyzed in relation to potential connections to existing trails, pedestrian spaces, and bicycle networks. The analysis also included a desktop environmental screening to identify areas of flooding and shoreland zoning regulations.

Design Recommendations

Design recommendations were developed by the Sewall Team in two rounds: preliminary recommendations and final recommendations. The development and evaluation of potential design recommendations was an iterative process that included on-going coordination and review with the Committee, review of the inventory and analysis work, and a detailed review of public feedback.

Existing Condition Photos of Study Area

Chapter 2

PUBLIC ENGAGEMENT

Community outreach played an important role in guiding the direction of the study. The public engagement occurred in two rounds, reflecting the different stages in the study process. The public engagement work and a summary of the feedback received during each round are provided below.

ROUND 1: EXISTING CONDITIONS + IDEAS

The first round of engagement asked participants to share issues and ideas about the study area. The feedback received contributed to a more comprehensive understanding of existing conditions as perceived by the users. It also directed the Sewall Team to potential design recommendations. This outreach work included three touch points, each summarized below:

First Public Workshop

The first Public Workshop was held at the Bangor Arts Exchange on May 22, 2024. Approximately 30-40 members of the public attended. The first round of feedback focused on the identification of existing conditions, issues, and opportunities in the study area. Members of the public were invited to point out areas of concern and identify potential opportunities on large scale maps. They were also invited to select their favorite design approach on image boards.

First Digital Survey

The first digital survey was open to the public from May 22, 2024 – July 17, 2024. It received 104 responses. The digital survey asked four questions about experiences in the study area as pedestrians and motorists. It also allowed respondents to place points on a digital map to identify areas of concern and opportunity.

July Bangor Sidewalk Festival

The Committee hosted a booth at the Bangor Sidewalk Art Festival on July 6, 2024. This in-person event had a mapping activity like the Public Workshop and directed visitors to the online website and survey.

What ideas did the public share?

The following public concerns and suggestions were collected at the meeting, many of which mirrored those voiced by the Committee. A brief summary of ideas shared by the public are listed below:

- Improved safety/reduce size of Center, Park, and Somerset Street intersection
- Replace all angled on-street parking with parallel parking
- Add more on-street parking spaces that are ADA accessible
- Improve pedestrian and bike safety at existing crosswalks and intersections
- Integration of bike lanes, bike racks, and a bike exchange program throughout project area
- Traffic calming along Harlow, State, Central, Hammond, and Main Streets
- Consideration of two-way traffic flows on Central, State, and Harlow Streets
- Consideration of roundabouts at some signalized intersections
- Revitalization of existing parks within the project area
- Better utilization of riverfront areas along Kenduskeag Plaza East and West
- Replacement of traffic signal at the intersection of Main and Broad Street with RRFB
- Implementation of a woonerf living street along Broad Street

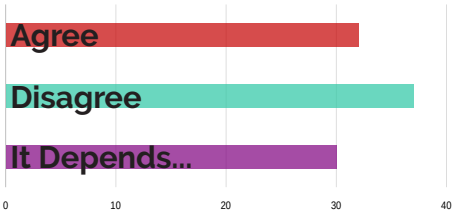
What images were most liked?

At the Public Workshop, participants were asked to put stickers on image boards to identify interventions or design strategies they would like to see implemented in the study area. Some of the most favorable images are presented on this page and the following page. The images serve as a visual guide for potential improvements to include in the recommendations.

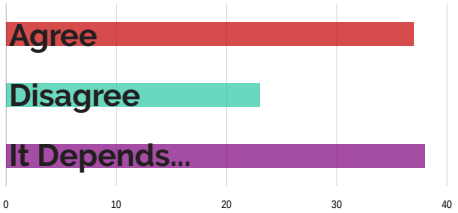
What did the Digital Survey Say?

The results of the digital survey asked participants about the ease of navigation and parking for motorists, and the safety as a pedestrian. The results of these questions are presented below. Opinion from the 104 participants was mixed and varied based on the location and time of day. The one item that nearly all participants could agree on was the potential to improve the Study Area.

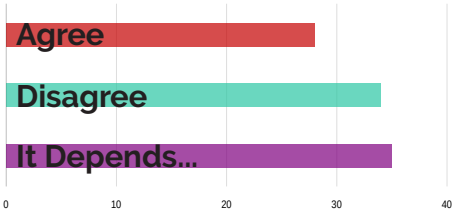
It is **easy to navigate** downtown when driving a vehicle.



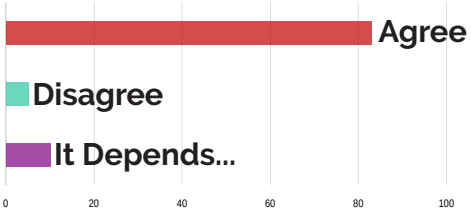
On average, it's **easy to find parking** most times of the day.



The streetscape **sidewalks are safe** and welcoming for pedestrians.



There is **potential to improve** the downtown Bangor experience.



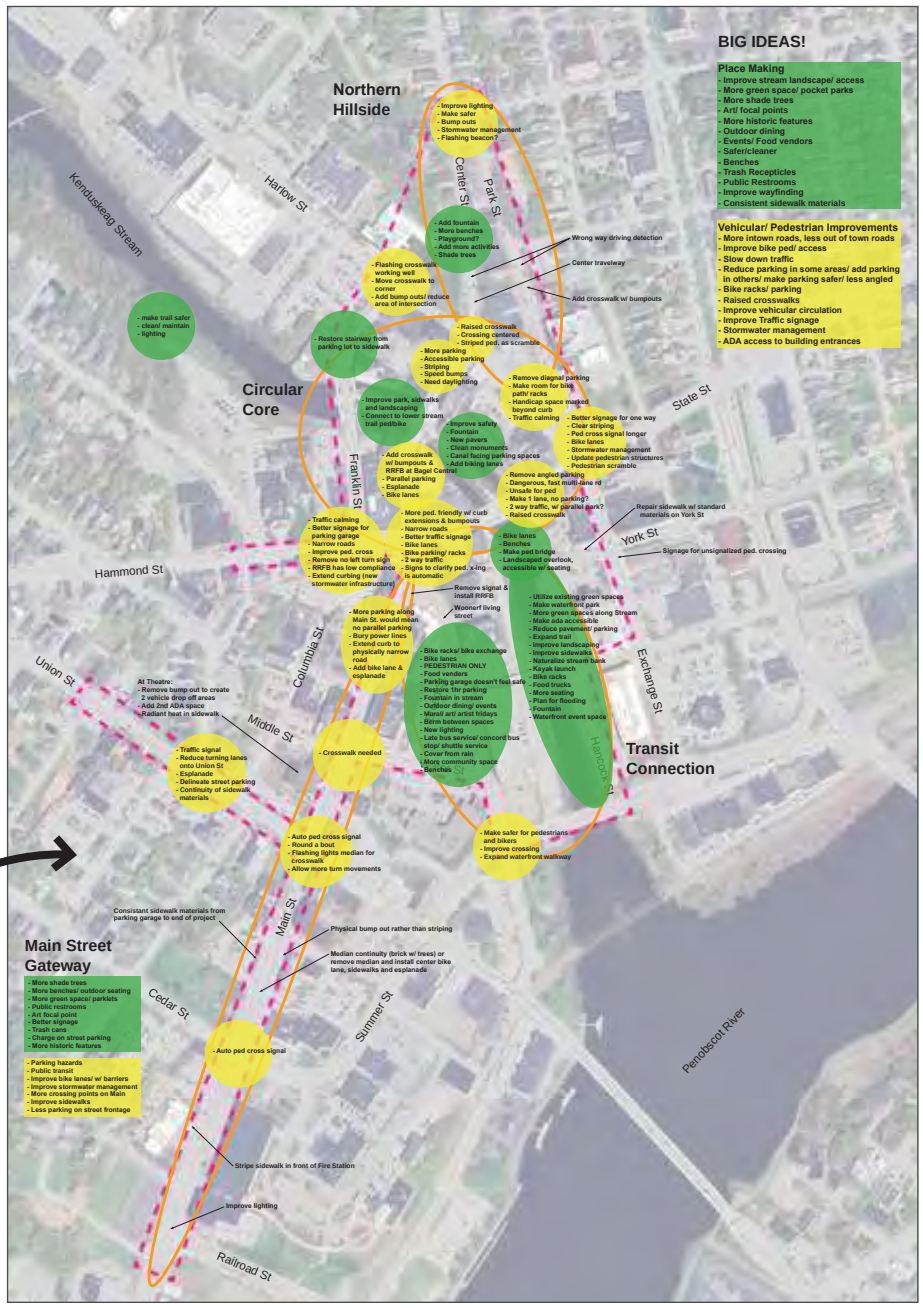
What did we learn from mapping the ideas?

The most informative feedback received in this first round of engagement was in the mapping completed online and at the first public workshop. Participants identified specific points within the Study Area as “issues” or “opportunities” and provided written feedback to support each data point. The results were synthesized and presented on the map below.

The feedback is summarized into two categories:

- **Place Making** (shown in green circles). Identified areas and feedback related to access to parks, the riverfront, street trees, historic features, public art, site furnishing and sidewalk improvements, wayfinding, and public amenities.
- **Vehicular / Pedestrian Improvements** (shown in yellow circles). Identified areas and feedback related to traffic circulation, traffic speeds, crosswalks, bike lanes, parking, traffic signage, intersection improvements, and ADA accessibility.

In-person collection of Geospatial comments



Geospatial Public Comment Synthesis Diagram

ROUND 2: PRELIMINARY RECOMMENDATION REVIEW

The second round of engagement asked participants to vote on preliminary recommendations within the Study Area. The feedback and comments received directly contributed to the shape of the final recommendations proposed in this Study. This outreach work included three touch points, each summarized below:

Second Public Workshop

The second Public Workshop was held at the Bangor Public Library on September 19, 2024. Approximately 20-30 members of the public attended. The preliminary recommendations were presented, and the public was asked to provide feedback and ask questions. Participants were directed to the digital survey to record their opinions.

Second Digital Survey

The second digital survey was open to the public from September 19, 2024 – October 18, 2024. It received 399 responses. The survey presented 13 preliminary recommendations, and asked respondents to vote for or against the ideas. Respondents also provided open-ended comments about each preliminary idea.

October Bangor Sidewalk Festival

The Committee hosted a booth at the Bangor Sidewalk Art Festival on October 5, 2024. This in-person event shared preliminary recommendations and directed visitors to the website and online survey. A paper survey was also made available for this event.

Feedback on Preliminary Recommendations

The preliminary recommendations were presented at the public workshop and in the digital survey. In most of the 13 survey questions, participants were then asked to indicate whether they agreed with the design idea by selecting between the following three options: (A) Yes, I think this is a great idea! / (B) No, I prefer the way it is today or another alternative / (C) I don't have a preference. As noted above, this round of engagement received 399 responses. The full results are provided in Appendix C.

All preliminary recommendations received won the YES vote by a margin of approximately 65% or greater, except for feedback relating to bike lanes. Based on these results, most recommendations (separate from bike lane design) were carried forward into the final design recommendations.

A summary of feedback specific to bike lanes and traffic circulation are presented on the following two pages. The feedback, concerns, and praise heard through this second round of public engagement in relation to the preliminary recommendations are noted later in this report under the recommendations for each specific study area.

Bike Lanes

In the survey questions relating to bike lane placement and design, 54% of survey respondents approved of adding bike lanes. While the majority of respondents would like to see bike lanes constructed within the study area, there were a significant number of comments received about bike lane placement and safety. Most respondents in support of bike lanes would like to see a bike lane design separated or protected from the travel lane. This public feedback encouraged outreach and coordination with the Bicycle Coalition of Maine to weigh in on the final recommendation for separated/protected bike lanes.

Roadway Cross-Section *presented to public for comment. Section shows bike lanes and parallel parking (right)*

Public Comment Quotes *selected from a high volume of public comments were received in the second online survey in response to the roadway cross section presented above (right)*

"Switch the position of the parking and the bike lanes. Put the bike lanes next to the curb and move the parking out so that the parking protects the bike lanes. This is much safer for cyclists"

"I support improvements to add bike lanes through the city"

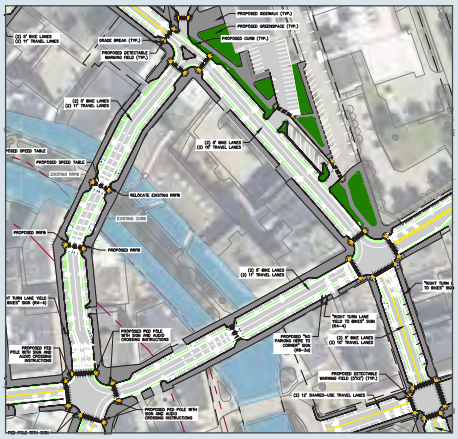
"Protected bike lane on the other side of the parked cars would be better and safer"

Bike Lane Images *presented to public for comment. The two images shown received the most "likes" at first Public Workshop (below)*

Circular Core Traffic Pattern (Harlow/State/Central)

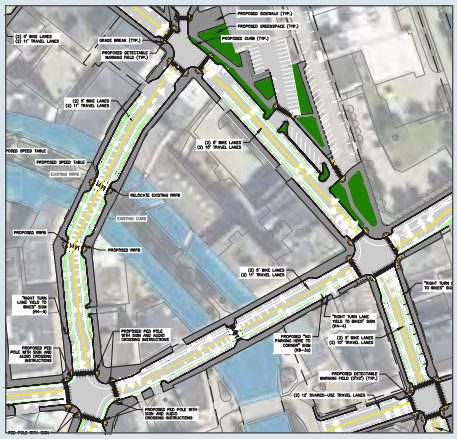
The survey included one question that was not a simple “yes or no” answer for participants. This question asked about traffic circulation and intersection design in the Circular Core. The Circular Core is a name given for this study to represent the portion of the Study Area that currently functions as a one-way traffic pattern on Harlow Street, Central Street, and State Street. This question presented three potential traffic patterns, and educational information about roundabout considerations:

OPTION A
Maintain One-Way Streets



A) One-way traffic pattern maintained with intersection and streetscape improvements

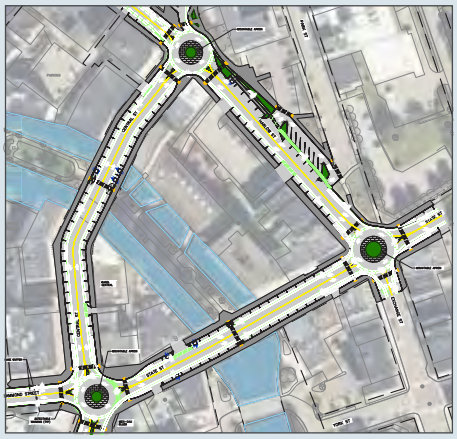
OPTION B
Two-Way Streets + Signals



B) Two-way traffic pattern with signalized intersections

D) More information needed to decide

OPTION C
Two-Way Streets + Roundabouts



C) Two-way traffic pattern with roundabouts

E) No Preference

Survey Results

A) One-way traffic pattern maintained with intersection and streetscape improvements **(26% - 88 respondents)**
B) Two-way traffic pattern with signalized intersections **(10% - 33 respondents)**
C) Two-way traffic pattern with roundabouts **(47% - 155 respondents)**
D) More information needed to decide **(16% - 54 respondents)**
E) No Preference **(1% - 3 respondents)**

333 TOTAL RESPONSES

The most popular option in the survey results favored the Option C: two-way traffic flow with roundabouts at the three intersections (47%). The results also indicate that 57% of respondents would like to see the introduction of a two-way traffic circulation pattern, with disagreement on an approach to the intersection design. The runner-up for the more favorable alternative was Option A: maintaining the one-way traffic flow with the proposed intersection and parking improvements (26%).

The Study Committee recommendations and detailed information about each design alternative is presented in Chapter 5 on page 30.

Public Feedback Comments

The second round of community engagement asked participants to provide feedback on the preliminary recommendations. As noted above 399 respondents provided a wide range of comments in response. The Sewall Team reviewed the comments and feedback received as the final recommendations were developed. The final results of this are presented in Appendix C. A few select comments are provided below to demonstrate the types of thoughtful responses received.

"We need to remove angled parking from downtown to allow more space for bike lanes and less risk from motorists backing out of angled spots."

"The greenspaces must be taken care of and not neglected if introduced"

"I don't like the idea of converting any green space into parking. All on-street parking downtown should be priced, to encourage use of the parking garage"

"Upgrade all sidewalks in the downtown area and ensure lane markings are painted and visible"

"This is much needed and will improve safety!" (RE: Central Street and Harlow Street intersection)

"Sounds good but keep seasonal maintenance requirements in mind!" (RE: recommended Traffic calming measures on Hammond Street)

Chapter 3

TRAFFIC AND SAFETY ANALYSES

Detailed traffic and safety analyses were conducted, including capacity analysis of existing conditions and projected future conditions. This analysis work included field reviews, safety review, a parking study, traffic data and capacity analysis, and a desktop environmental screening. The complete Traffic and Safety Analyses are included in Appendix A and a summary of each analysis item is provided below:

FIELD REVIEWS

The Sewall Team walked the study corridors along with City of Bangor staff, BACTS staff, and MaineDOT representatives on Friday, December 1, 2023. These detailed reviews identified existing conditions/deficiencies, such as non-ADA compliant curb ramps, existing travel way, shoulder and sidewalk widths, and the conditions of these facilities. These reviews also examined potential locations for new/improved pedestrian and bicycle facilities and noted existing design constraints, such as bus routes and utilities. Additionally, the conversion of Broad Street to a partially/completely closed-to-traffic woonerf paver design was discussed. The findings of the field work formed the foundation for the recommended improvement options.

Traffic flow at intersection of Main Street and Water Street

SAFETY REVIEW

The detailed crash data and location review can be found in Appendix A. In summary, of 46 roadway sections and intersections reviewed throughout the study area, five (5) are classified as High Crash Locations by the MaineDOT criteria. These locations are the intersection of Main Street and Union Street, Main Street from Cross Street to Broad Street, State Street from Hammond Street to Harlow Street, Central Street from Harlow Street to Hammond Street, and Harlow Street from Central Street to Franklin Street.

Of the 112 total crashes, there were no resulting fatalities, and two (2) incapacitating crashes. One incapacitating crash occurred at the intersection of Main and Cedar Street, and the other occurred at the intersection of Main and Union Street.

Intersection of Main and Union Street

The intersection of Main Street and Union Street's majority of crashes were rear end collisions and turning lanes failing to yield to thru traffic and pedestrians. To address the failure to yield to pedestrians, it is recommended that a leading pedestrian interval (LPI) be added for each approach. Providing an LPI for each approach allows pedestrians an opportunity to enter the crosswalk 3 – 7 seconds before the concurrent movement lanes are given a green indication. This improvement will serve to increase the pedestrian safety of the intersection. Installing a flashing yellow left-turn signal at the easterly, westerly, and southerly approaches may decrease the amount of failures to yield to thru traffic.

Roadway Segments

- **Main Street – Cross Street to Broad Street**
- **State Street – Hammond Street to Harlow Street**
- **Central Street – Harlow Street to Hammond/Main Street**
- **Harlow Street – Central Street to Franklin Street**

All four (4) of the roadway segments identified as High Crash Locations share similar incident types including: backing into through traffic from on-street angled parking, sideswipes due to improper lane changes, rear ending due to following too close and fast moving vehicles. The recommended improvements detailed in Chapter 5 of this report are intended to address these issues by replacing angled parking with parallel parking and implementing traffic calming measures.

PARKING STUDY

A parking study was performed on Friday, November 24, 2023("Black Friday") between 10:00 AM and 2:00 PM. Existing on-street parking locations were identified on aerial photography and verified in the field. There are 388 available on-street public parking spaces within the study area. The parking study results were summarized and presented at the initial public meeting. The overall peak usage for the entire study area occurred from 12:00 to 1:00 PM with 230 vehicles parked. Based upon this result, there was nearly 40% excess on-street parking available. As shown in the figure below, the parking study generally determined that the parking spaces along Central Street were fully utilized, with parking on adjacent streets being utilized thereafter. A number of spaces on the outskirts of downtown were available. It was also found that the Pickering Square Parking Garage does not utilize its full capacity, with maximum numbers reached on nights of popular Waterfront concerts. Based upon the results, along with feedback regarding parking concerns received from the first online survey, the study has outlined some opportunities for safer parking arrangements that accommodate a similar number of parking spaces in the recommended improvements section of this report.

Parking Study Diagram

TRAFFIC DATA + ANALYSIS

The detailed traffic data and analysis can be found in Appendix A. In general, the existing PM peak hour conditions in 2024 are acceptable with Level of Service ratings of D or greater. A Level of Service rating below D is often the trigger for planning improvements. There is queuing that exceeds storage lengths at some signalized intersections with Main Street, but this is generally caused by the Main Street coordination and is done by design to move traffic into and out of downtown efficiently. Queuing on Main Street does not routinely extend to the nearest signalized intersection.

The 2024 traffic volumes were forecast to 2044 levels, using a ½% per annum growth rate. These projected volumes were applied to the existing physical condition configurations, as well as three (3) alternative scenarios recommended by the Sewall Team:

- Alternative A: Single thru lane northbound on Main Street from Railroad Street to Union Street.
- Alternative B: Two-way traffic downtown with roundabouts at Main/Hammond Street, State/Exchange/Harlow Street, and Harlow/Central/Center Street.
- Alternative C: Two-way traffic downtown with traditional traffic signals at Main/Hammond Street, State/Exchange/Harlow Street, and Harlow/Central/Center Street.

Only one intersection within the study area indicates a likely need for capacity improvements by the year 2044: the stop controlled intersection of Second Street, High Street & Union Street. Both stop controlled approaches are expected to operate at a failing LOS “F” with the northbound and southbound approach delays growing excessive – over 2 minutes. Options for improvement, such as a traffic signal or restricting movements, will need to be considered at this location in the future. However, the location of this intersection reduces the impact on the overall transportation system within the study area, and can be addressed at a later time outside of the scope of this study.

All other locations showed acceptable capacity in 2044 under the existing physical conditions as well as the three (3) alternatives recommended by the Sewall Team. Therefore, the team has moved forward with the recommendations presented with confidence that vehicular traffic will not be negatively impacted if any of the alternatives are chosen.

DESKTOP ENVIRONMENTAL SCREENING

A desktop environmental screening was performed for the study area to identify any environmental characteristics in or around the project boundary limits. The items included in the screening were wildlife habitats, FEMA flood zones, conservation zones, oil spills, registered fuel tanks, and wetlands. The screening as based on the following sources: Maine Department of Environmental Protection data maps, Maine Department of Agriculture, Conservation, and Forestry data maps, U.S. Fish and Wildlife data maps, and the City of Bangor’s ArcGIS Map.

The environmental data points and regulatory boundaries identified in the screening are listed and mapped on the following page.

Environmental Features

Conservation land

- Along Broad Street and Merchant Plaza
- The parkways along the Kenduskeag Stream
- The public park along Harlow Street

FEMA 100-year Flood Zone

- Both sides of the Kenduskeag Stream
- Significant impacts to Kenduskeag Plaza East and West

FEMA 500-year Flood Zone

- Both sides of the Kenduskeag Stream
- Significant impacts to Broad Street, Merchant Plaza, and portions of Main and Water Streets

250-foot Shoreland Zone

- Kenduskeag Plaza East and West
- Harlow, Central, Franklin, State, Hancock, York, and Washington Streets

Threatened Species Habitat

- Central and Franklin Streets

Registered Fuel Tanks

- Exchange, York, Harlow, Franklin, Water Streets, and Kenduskeag Plaza West

Recorded Remediation Sites

- Main Street

Chapter 4

BIG IDEAS

The focus of this study is transportation and streetscape improvements within the core of downtown Bangor. While the proposed recommendations are site specific improvements in the study area, this study recognizes the context within the greater Bangor community and natural environment.

CONNECTION TO THE WATER

Downtown Bangor is positioned at the convergence of the Kenduskeag Stream and the Penobscot River. The Kenduskeag Stream is channeled through downtown, acting as a central feature in the urban landscape. There are six bridge crossings over the Kenduskeag Stream within the study area, offering those in the downtown frequent glimpses of the waterfront. Between Franklin Street and State Street, the Kenduskeag Stream is bisected into two channels by an old building foundation that hosts the Norumbega Parkway. The Norumbega Parkway provides a pedestrian connection along the water's edge, that serves as an alternative to the road network.

The Kenduskeag waterfront and the connection to the waterway through to the Penobscot River are an opportunity for the community to capitalize on. Despite the Norumbega Parkway public open space on the waterfront, the presence of the Kenduskeag Stream in downtown Bangor is overlooked for its potential. Much of the downtown development faces away from the water and there are underutilized areas along the waterfront that could be activated as additional public open space.

Penobscot River and Kenduskeag Stream in relation to Study Area

PEDESTRIAN CONNECTIVITY

There are established trails and areas for pedestrian connectivity on either side of the study area. To the north, the Kenduskeag Trails provide a natural pathway along the Kenduskeag waterfront. To the south, the Bangor Waterfront Trail is a paved and ADA accessible pathway that ties into the larger waterfront park. There is potential to formally connect the pathways through the study area and expand on the recreational and pedestrian amenities through the downtown core. Identifying the connectivity to the larger community shines a light on the opportunities for improved pedestrian spaces in the study area.

The proposed recommendations related to this big picture are to expand on the quality and connectivity of pedestrian spaces.

BICYCLE NETWORK

Through the public engagement process, the Committee heard feedback about the need for bike lanes and safer bicycle infrastructure through the downtown. There has been an increase in the number of cyclists, and this is expected to grow with both traditional and electric bikes. Bike routes were comprehensively studied in the greater Bangor area in the 2019 BACTS Long Range Pedestrian and Bicycle Plan (BACTS Plan), with recommendations for improved bicycle infrastructure in and around the study area. The BACTS plan identified the following routes within the study area:

- Main Street and State Street as major bicycling routes (BACTS Plan - page 31).
- The East Coast Greenway passes through the study area along the Kenduskeag Stream (behind the parking garage) before crossing the stream over the pedestrian bridge towards Exchange Street (BACTS Plan - page 52).
- Central Street and Center Street were identified as part of the proposed Northern Maine Bike Route (BACTS Plan - page 52).

The need for safe bicycle lanes and infrastructure within the study area are an important consideration included throughout the recommendations in this study.

TRAFFIC CALMING

Transportation safety for all modes and users is the most agreed upon issue discussed as part of this study. While designating sidewalks for pedestrians and bike lanes for cyclists is a key component, the interaction of vehicular traffic with other modes at conflict points must be considered. Traffic calming elements are woven throughout the recommendations of the study to accomplish this primary goal of slowing vehicular traffic and increasing the safety and visibility at conflict points. The downtown Bangor area is a unique destination and visitors should be encouraged to embrace their surroundings rather than move through as quickly as possible.

Road mural on Hammond Street serves as test pilot for traffic calming measure.

Chapter 5

RECOMMENDED IMPROVEMENTS

This section outlines recommended improvements for the study area. The recommendations are a culmination of the year-long study, including the identification of needs and goals, site investigations and assessment of existing conditions, the traffic and safety analysis, feedback from public engagement, concept design development by the Sewall Team, and reviews by the Committee.

The recommendations divided into the following focus areas:

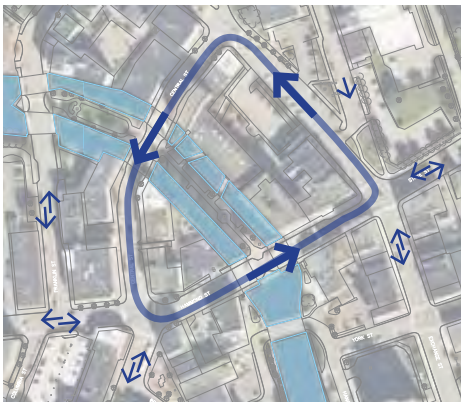
1. Circular Core
2. Intersection Improvements
3. Bicycle Infrastructure
4. Street Improvements
5. Shared Plaza
6. Waterfront Park
7. Materials + Costs

Existing Conditions on Main Street facing north toward intersection with State Street

1. CIRCULAR CORE: TRAFFIC PATTERN + INTERSECTIONS

The term 'Circular Core' is a term used in this study to identify the section of downtown defined by the one-way circular traffic pattern on State Street, Harlow Street, Central Street, and Hammond Street.

The existing traffic pattern around the circular core is two-lane roads with one-way traffic and signalized intersections. Meetings with the Committee and public feedback results determined that there was an interest in improving traffic flow through the downtown district by modifying traffic flow patterns.



Circular Core Existing One-Way Travel Direction
Arrows indicate direction of vehicular travel. Solid blue line indicates the "circular core".

Alternatives

The Sewall Team presented three options for analysis and public feedback:

- **Option A: Maintain Existing one-way traffic pattern with intersection and streetscape improvements.**
- **Option B: Replace one-way traffic pattern with two-way using signalized intersections.**
- **Option C: Replace one-way traffic pattern with two-way using roundabout intersections.**

The public survey showed the most favored approach was Option C and the second most favored approach was Option A. A detailed summary of the public engagement feedback is presented in Chapter 2 on page 19.

Based on the survey results, the Study Committee and Sewall Team closely studied two potential alternatives for traffic circulation and intersection design on Harlow Street, Central Street, and State Street: (Option A) one-way traffic flow with signaled intersection and parking improvements and (Option C) two-way traffic flow with roundabouts.

Recommendation

This study recommends maintaining one-way traffic, improving the intersection layouts, providing traffic calming elements and providing street scape improvements (Option A). This option was selected because the intersection design will not impact right-of-way constraints and offers the most cost effective solution.

While the two-way traffic flow with roundabouts alternative (Option C) was favored in the survey, the Study Committee determined this should not be recommended, namely due to right-of-way impacts and the high cost of construction.

Option B was not favored by the public or the Study Committee. In this option, vehicular delays are expected to increase and the number of parking spaces would decrease.

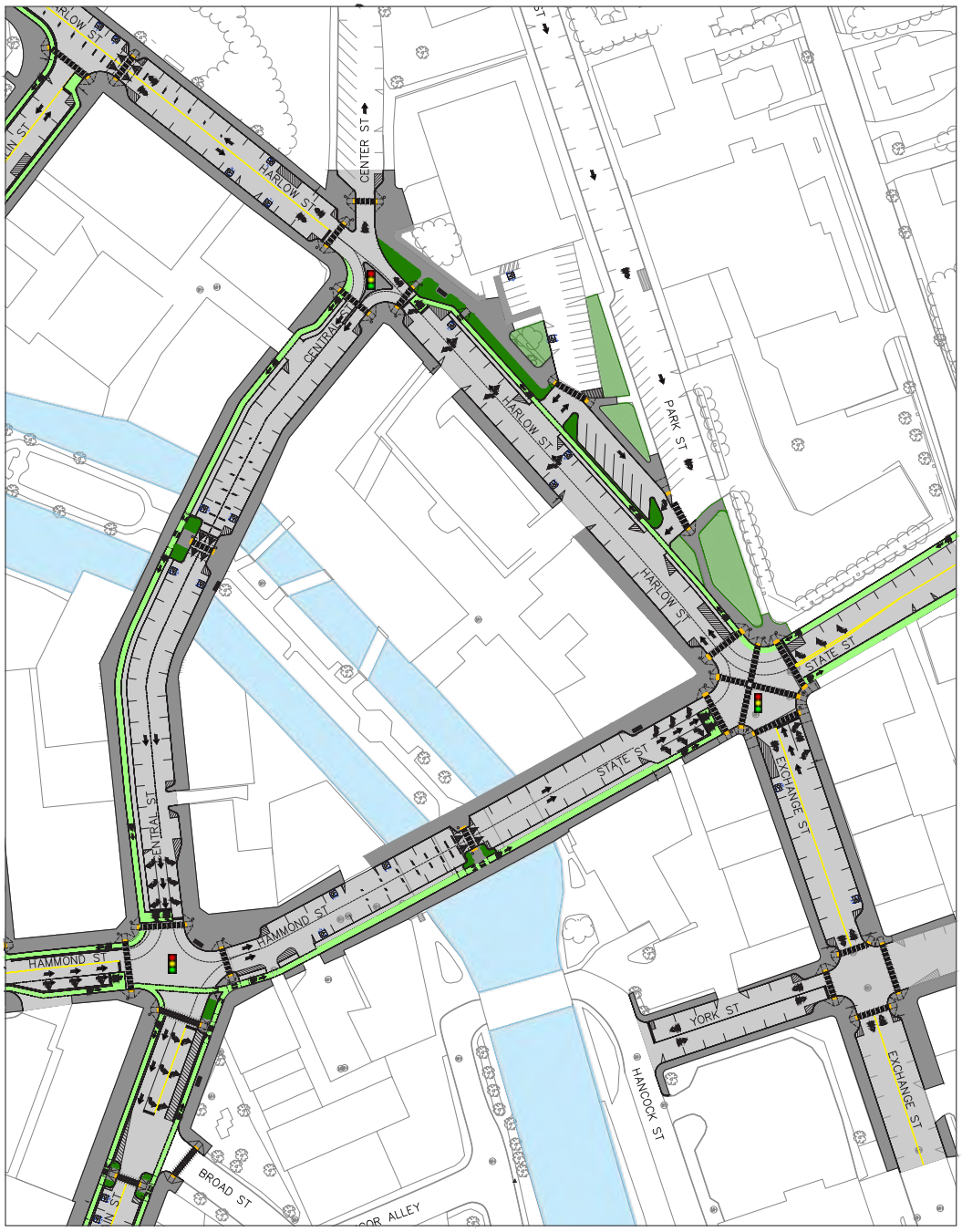
Details for each alternative are included on the following pages:

- Option A: Recommended (page 31 to 34)
- Option B: Two-way alternative with signals (page 35 to 38)
- Option C: Two-way alternative with roundabouts (page 39 to 42)

Option A: Maintain One-Way Traffic Pattern with Traditional Intersection Improvements (Recommended)

In this option, the two-lane streets would remain one way in the same traffic pattern that currently exists. Streetscape and intersection improvement recommendations include changes to on-street parking, bike lanes, curbs, traffic calming measures, and intersection improvements. The intersections would remain traditional signalized intersections. An overall plan is presented below and detailed intersection improvement descriptions are presented on the following pages.

The estimated cost of improvements detailed for Option A is $2,250,000 (see Appendix E for additional cost estimate details).

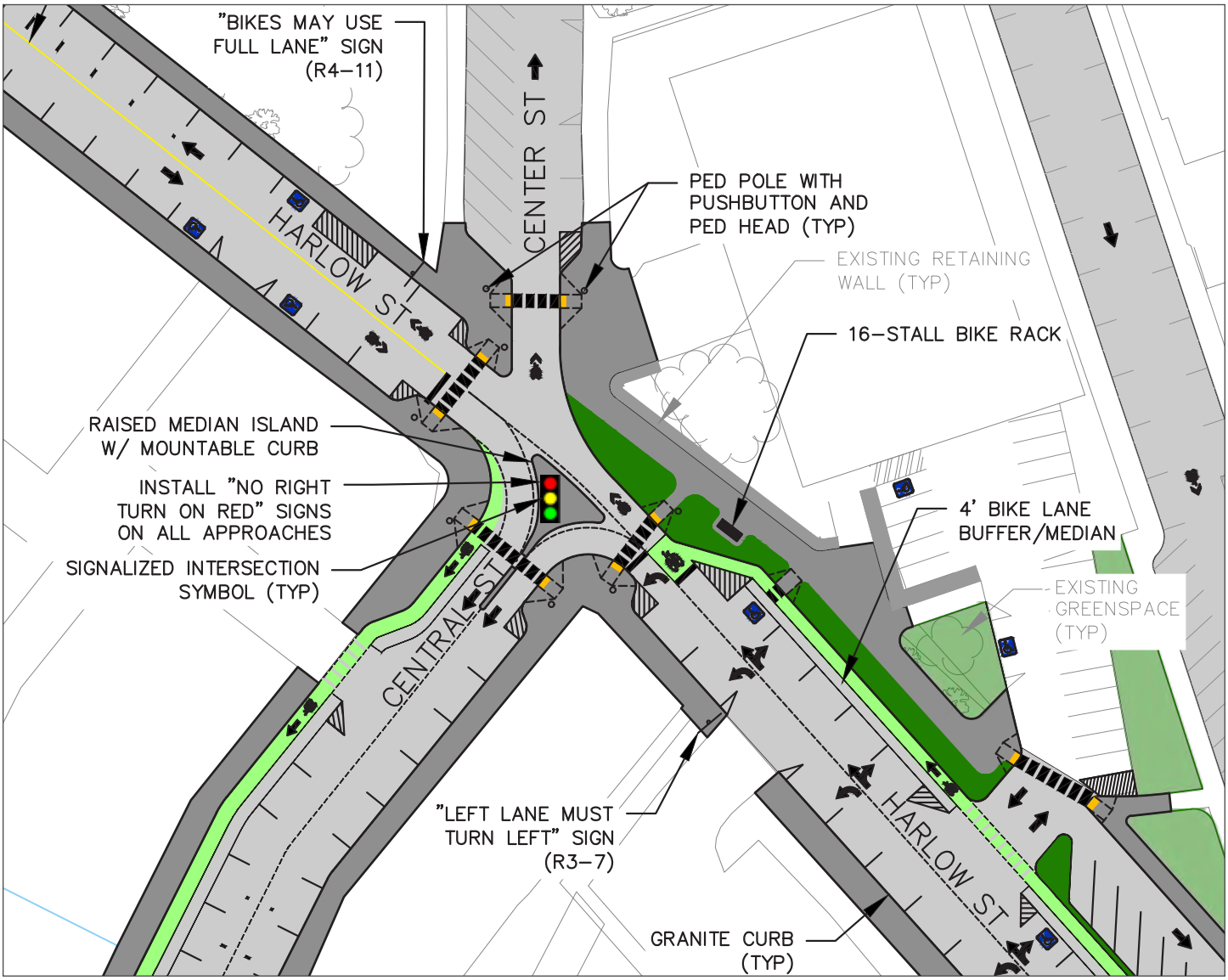


Option A Plan

Maintain One-Way Traffic Pattern with Traditional Intersection Improvements

Option A: One-way Traffic Flow: Harlow / Center / Central Streets Intersection

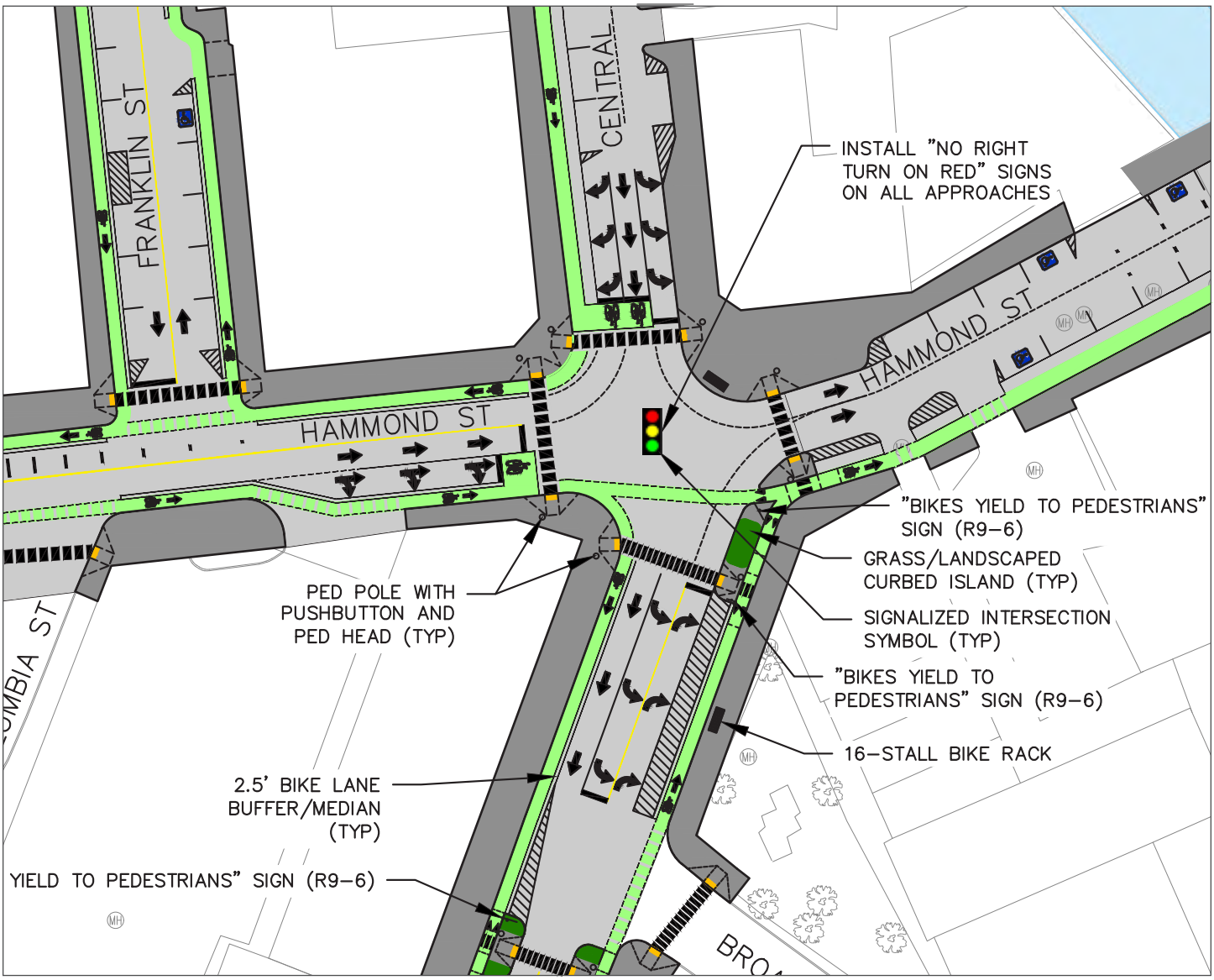
This option improves vehicular and pedestrian mobility without changing existing traffic flow patterns. Recommendations include narrowing and re-aligning the approach onto Center Street to slow vehicular traffic turning from Harlow Street, and reduce the length of the pedestrian crosswalk on Center Street. It is also recommended that curbs be bumped out at both approaches to Central Street to narrow travel lane widths, and at crosswalk locations to shorten pedestrian crossings and increase pedestrian visibility to vehicular traffic. The existing "porkchop" island should be replaced with a larger island and extended median to accommodate the change in travel lane widths, median indicator signs installed, lane striping utilized to indicate lane assignments. It is recommended that all pedestrian crossings receive updated pedestrian poles with mounted pushbuttons, pedestrian signal heads, and appropriate Accessible Pedestrian Signals (APS) technologies. All pushbuttons and pole locations shall be designed in accordance with APS practices.



Option A Plan of Harlow / Center / Central Streets Intersection
(one-way traffic flow with signalized intersection improvements)

Option A: One-way Traffic Flow: Hammond / Central / Main Streets Intersection

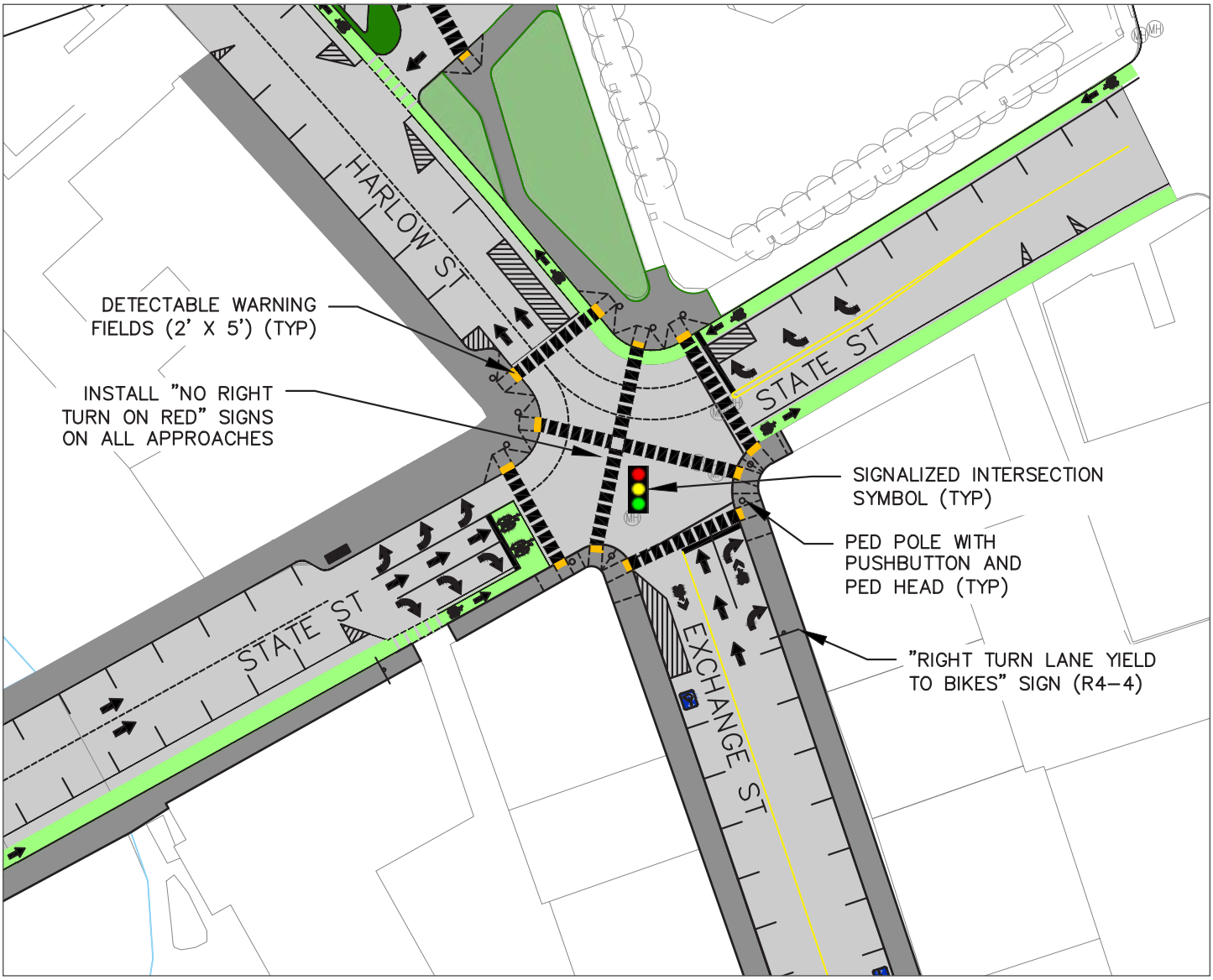
Public and internal concerns identified at this intersection include confusion surrounding pedestrian crossing timings, unsafe pedestrian crossings, and wide roadways. To narrow the intersection and decrease the length of pedestrian crossings, it is recommended that curbs be extended at all corners of the intersection. To provide pedestrian crossing timing clarity, it is recommended that pedestrian poles with mounted pushbuttons, pedestrian signal heads, and appropriate APS technologies be installed at each crossing location. Blank out signs stating “No turn on Red” and “Yield to Pedestrians” are recommended for all approaches of this intersection due to the exclusive pedestrian phasing. All pushbuttons and pole locations shall be designed in accordance with APS practices.



Option A Plan of Hammond / Central / Main Streets Intersection
(one-way traffic flow with signalized intersection improvements)

Option A: One-way Traffic Flow: State / Harlow / Exchange Streets Intersection

Public and internal concerns at this intersection include driver confusion resulting in wrong-way driving south on State Street, and pedestrians crossing along non-marked portions of the intersection. It is recommended that diagonal crosswalks be painted to allow for a pedestrian scramble during the exclusive pedestrian phase, accompanied by additional pedestrian signal heads and push buttons with audible indications, in compliance with Public Right-of-Way Accessibility Guidelines (PROWAG). It is also recommended that curb lines be extended on the northeast, northwest, and southwest corners of the intersection, detectable warning fields be installed at each of the perpendicular pedestrian crossings, and curb tipdowns be re-worked to accommodate the pedestrian scramble configuration. All pushbuttons and pole locations shall be designed in accordance with APS practices.

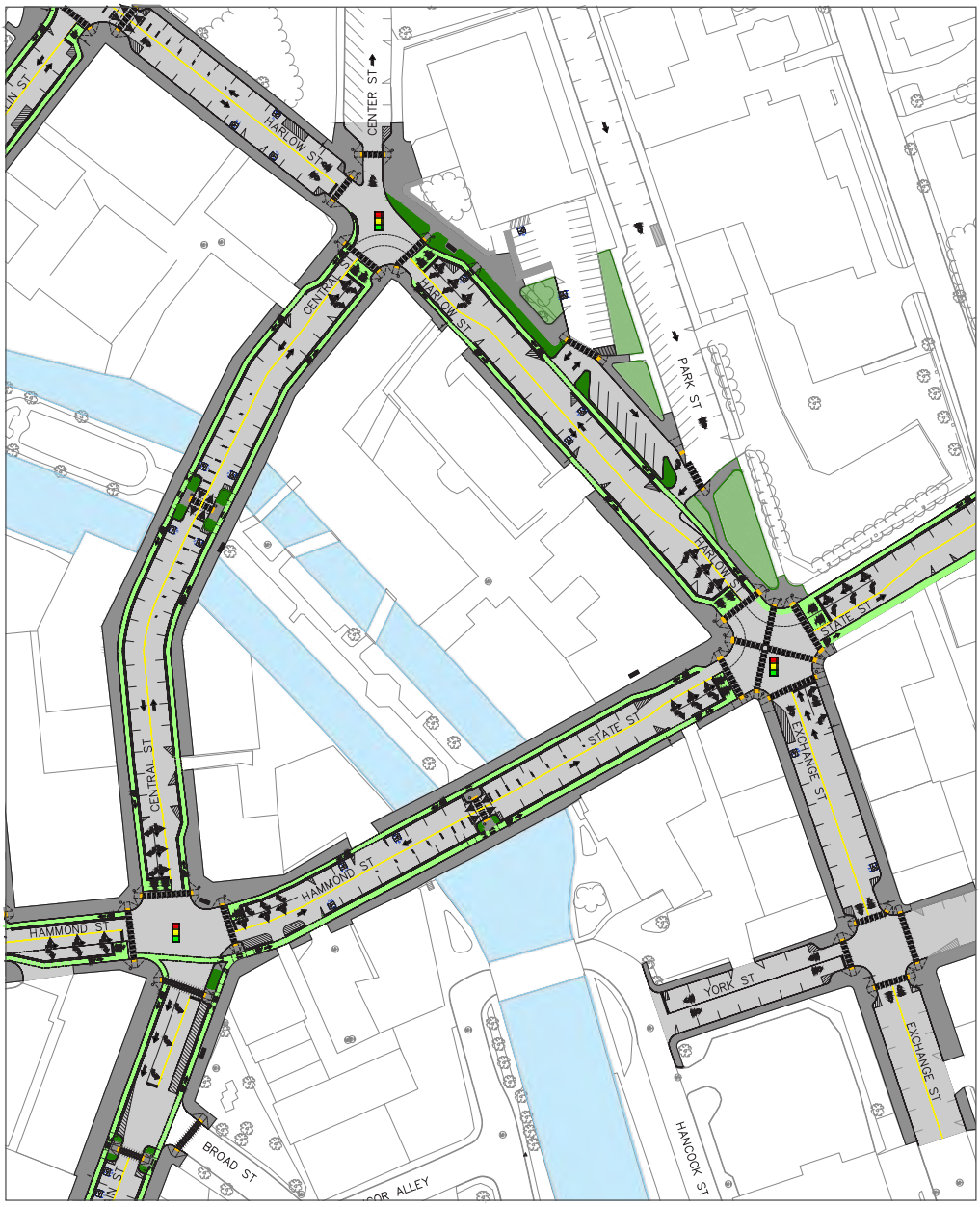


Option A of State / Harlow / Exchange Streets Intersection
(one-way traffic flow with signalized intersection improvements)

Option B: Change to Two-Way Traffic Pattern with Signalized Intersections

In this option, the traffic flow on the two-lane streets would change to a two-way traffic pattern, common to most other streets in the downtown area. At the three intersections, traditional traffic signals would be updated to accommodate the two-way traffic flow. Beyond the redirection of traffic flow, improvement recommendations also include many of the same proposed changes shown in Option A, including changes to on-street parking, bike lanes, curbs, and traffic calming measures. An overall plan is presented below and detailed intersection improvement descriptions are presented on the following pages.

The estimated cost of improvements detailed for Option B is $2,500,000 (see Appendix E for additional cost estimate details).

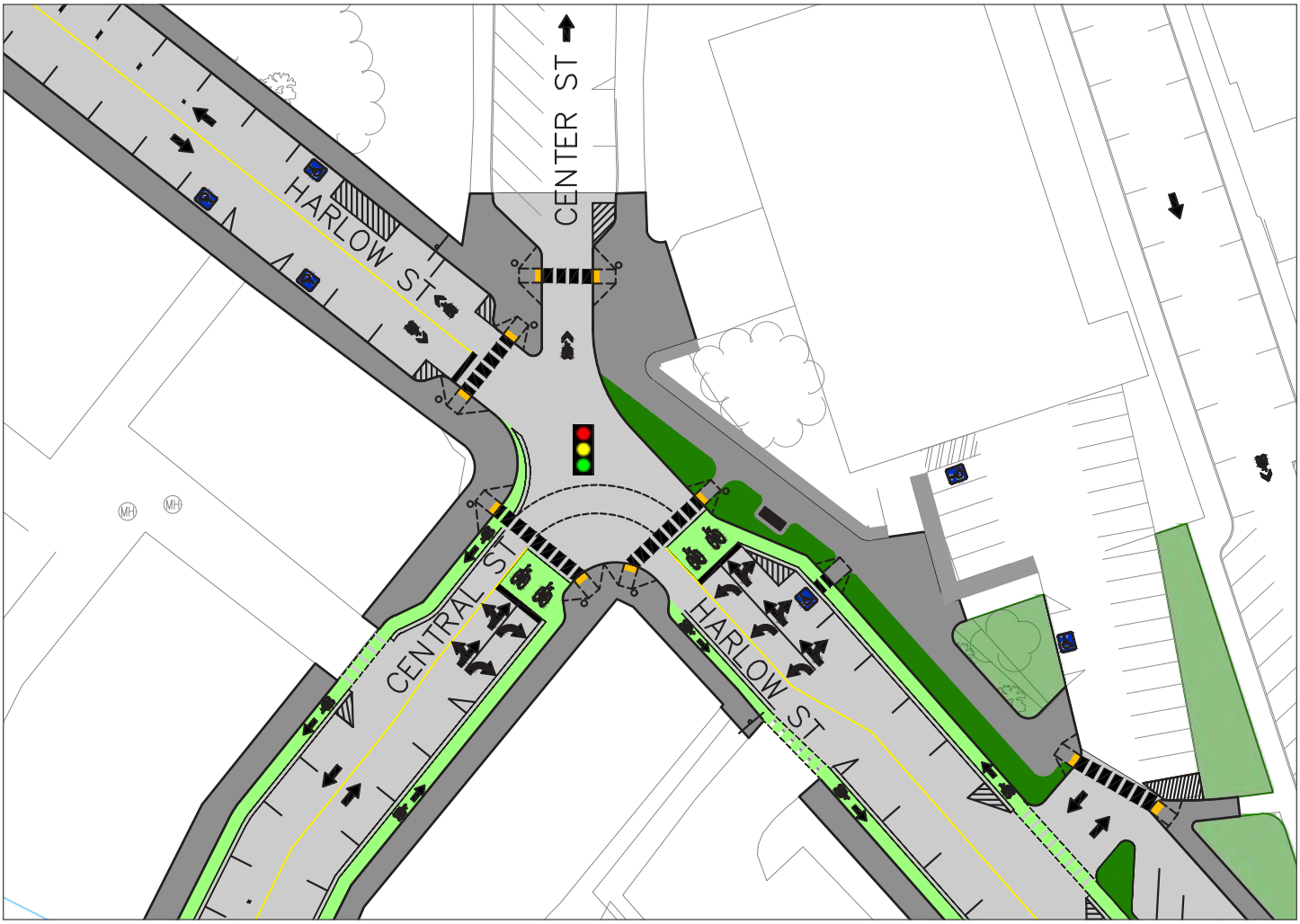


Option B Plan

Change to Two-Way Traffic Pattern with Signalized Intersection Improvements

Option B: Two-way Traffic with Signals
Harlow / Center / Central Streets Intersection

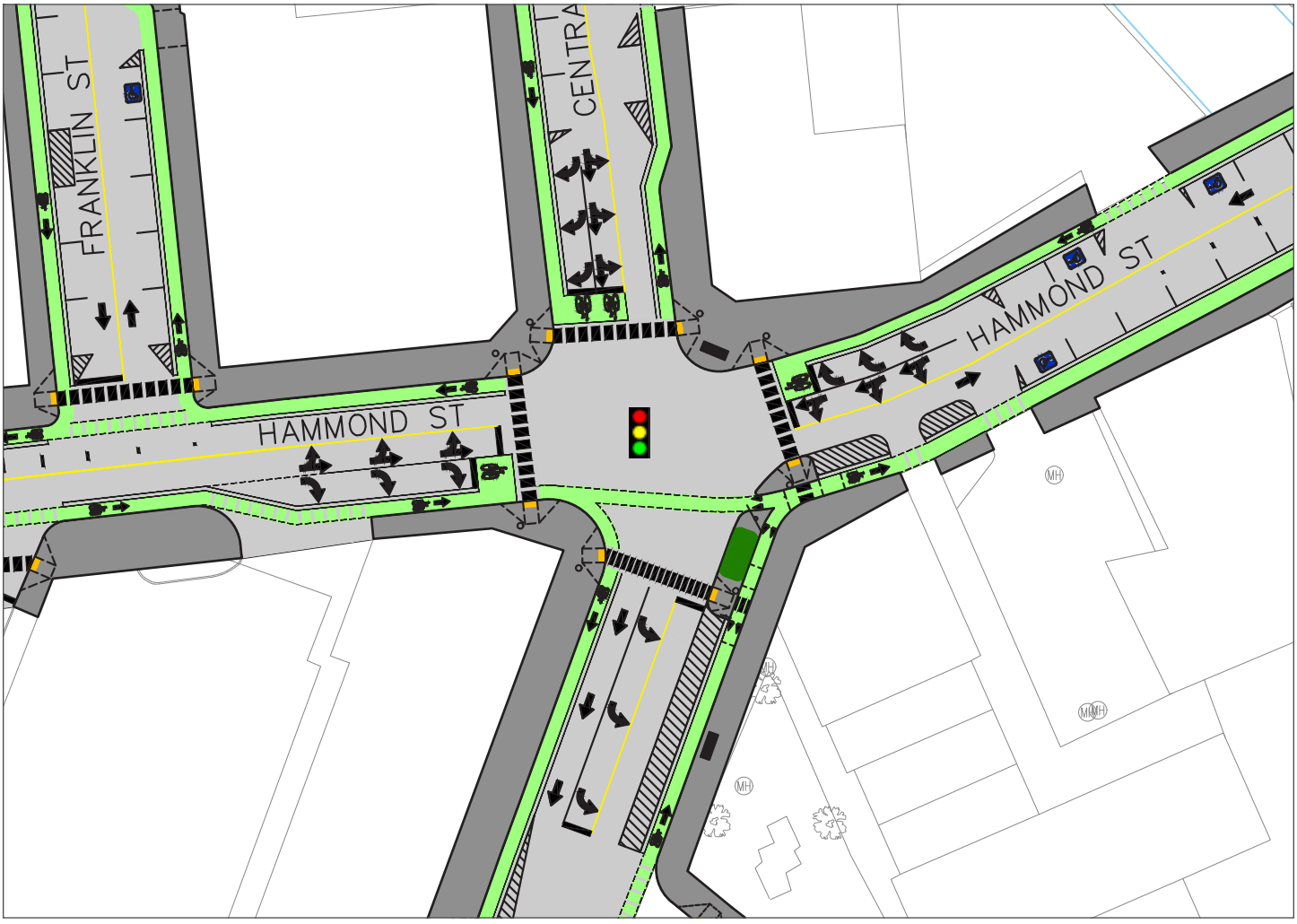
This option allows for two-way traffic maneuvers on Central and Harlow Street, while maintaining a one-way traffic flow on Center Street. Recommendations include replacement of the traffic signals to accommodate a two-way traffic flow. The approach onto Center Street is recommended to be narrowed and re-aligned to slow vehicular traffic turning from Harlow Street, and reduce the length of the pedestrian crosswalk on Center Street. It is also recommended that curbs be bumped out at both approaches to Central Street to narrow travel lane widths, and at crosswalk locations to shorten pedestrian crossings and increase pedestrian visibility to vehicular traffic. The existing "porkchop" island is to be removed, and lane striping utilized to indicate lane assignments. Additional turn lanes are recommended at the intersection, on Central Street and Harlow Street, to allow for more turn movements and vehicle storage. It is recommended that all pedestrian crossings receive updated pedestrian poles with mounted pushbuttons, pedestrian signal heads, and appropriate APS technologies. All pushbuttons and pole locations shall be designed in accordance with APS practices.



Option B Plan of Harlow / Center / Central Streets Intersection
(two-way traffic flow with signalized intersection improvements)

Option B: Two-way Traffic with Signals
Hammond / Central / Main Streets Intersection

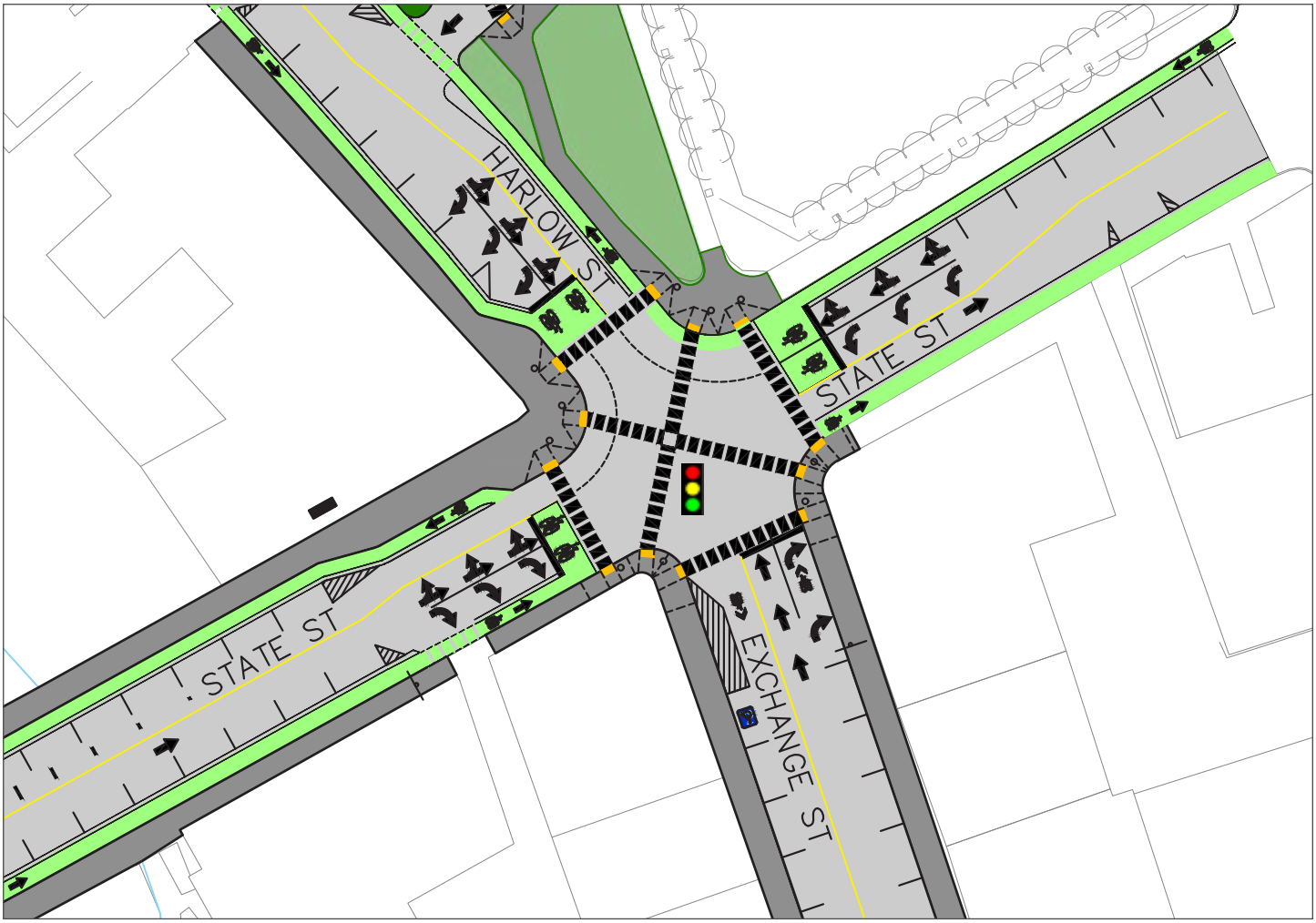
This option allows for two-way traffic maneuvers on all roadways entering the intersection. Public and internal concerns identified at this intersection include confusion surrounding pedestrian crossing timings, unsafe pedestrian crossings, and wide roadways. Recommendations include replacement of the traffic signals to accommodate a two-way traffic flow, and additional turn lanes on all streets to allow for more turn movements and vehicle storage. To narrow the intersection and decrease the length of pedestrian crossings, it is recommended that curbs be extended at all corners of the intersection. To provide pedestrian crossing timing clarity, it is recommended that pedestrian poles with mounted pushbuttons, pedestrian signal heads, and appropriate APS technologies be installed at each crossing location. Blank out signs stating, “No turn on Red” and “Yield to Pedestrians” are recommended for all approaches of this intersection due to the exclusive pedestrian phasing. All pushbutton and pole locations shall be designed in accordance with APS practices.



Option B Plan of Hammond / Central / Main Streets Intersection
(two-way traffic flow with signalized intersection improvements)

Option B: Two-way Traffic with Signals
State / Harlow / Exchange Streets Intersection

This option allows for two-way traffic maneuvers on all roadways entering the intersection. Public and internal concerns at this intersection include driver confusion resulting in wrong-way driving south on State Street, and pedestrians crossing along non-marked portions of the intersection. Recommendations include replacement of the traffic signals to accommodate a two-way traffic flow, and additional turn lanes on all streets to allow for more turn movements and vehicle storage. It is also recommended that diagonal crosswalks be painted to allow for a pedestrian scramble during the exclusive pedestrian phase, accompanied by additional pedestrian signal heads and push buttons with audible indications, in compliance with Public Right-of-Way Accessibility Guidelines (PROWAG). All pushbuttons and pole locations shall be designed in accordance with APS practices. Lastly, it is recommended that curb lines be extended on the northeast, northwest, and southwest corners of the intersection, detectable warning fields be installed between each of the pedestrian crossings, and curb tipdowns be re-worked to accommodate the pedestrian scramble configuration.

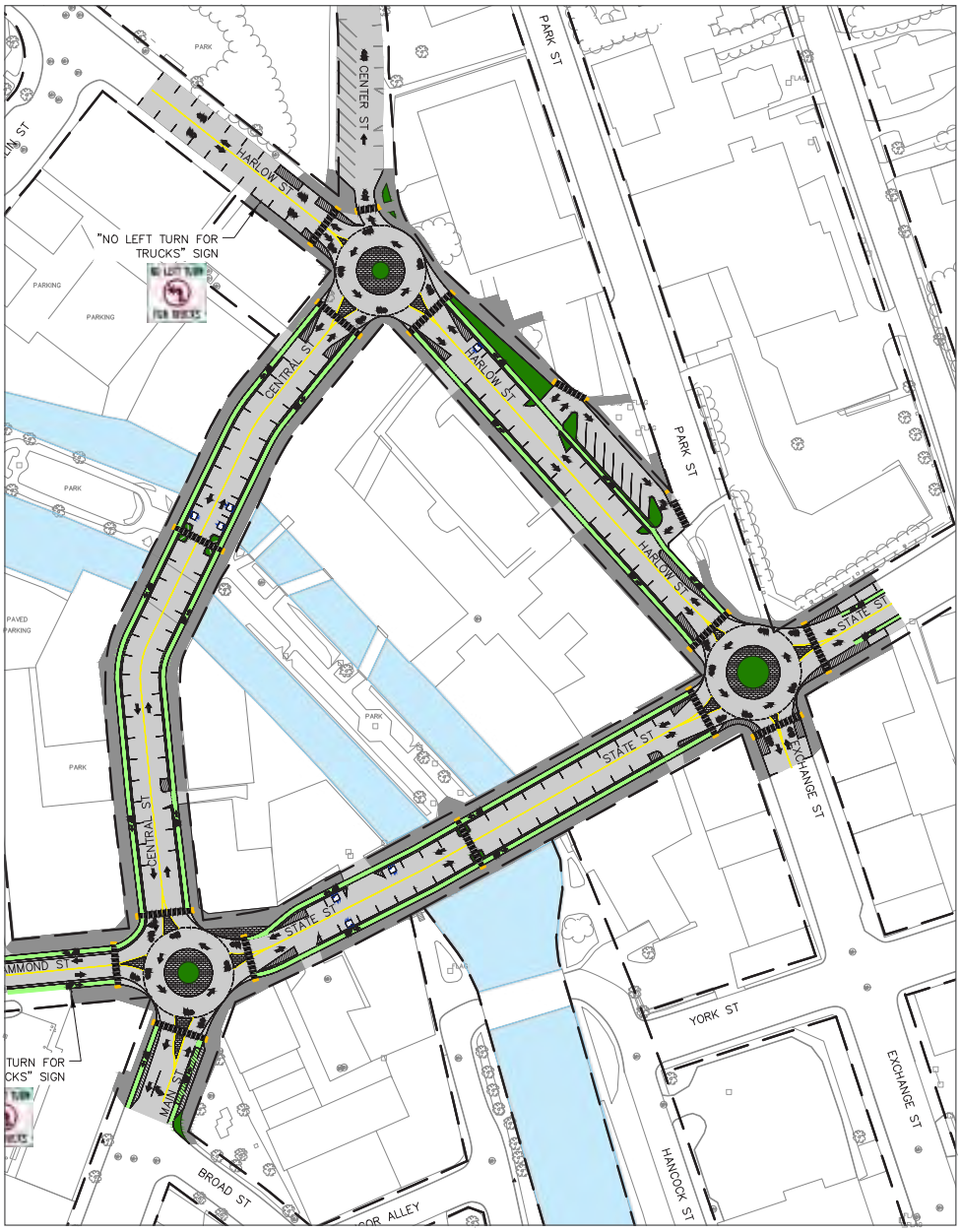


Option B Plan of State / Harlow / Exchange Streets Intersection
(two-way traffic flow with signalized intersection improvements)

Option C: Change to Two-Way Traffic Pattern with Roundabout Intersection Improvements

In this alternative approach, the traffic flow on the two-lane streets would change to a two-way traffic pattern, common to most other streets in the downtown area. At the three intersections, roundabouts would replace the signalized intersections. Beyond the major intersection changes, and the redirection of traffic, improvement recommendations also include many of the same proposed changes described in the Recommended Approach, including changes to on-street parking, bike lanes, curbs, and traffic calming measures. An overall plan is presented below and detailed intersection improvement descriptions are presented on the following pages.

The estimated cost of improvements detailed for Option C is $7,500,000 (see Appendix E for additional cost estimate details).

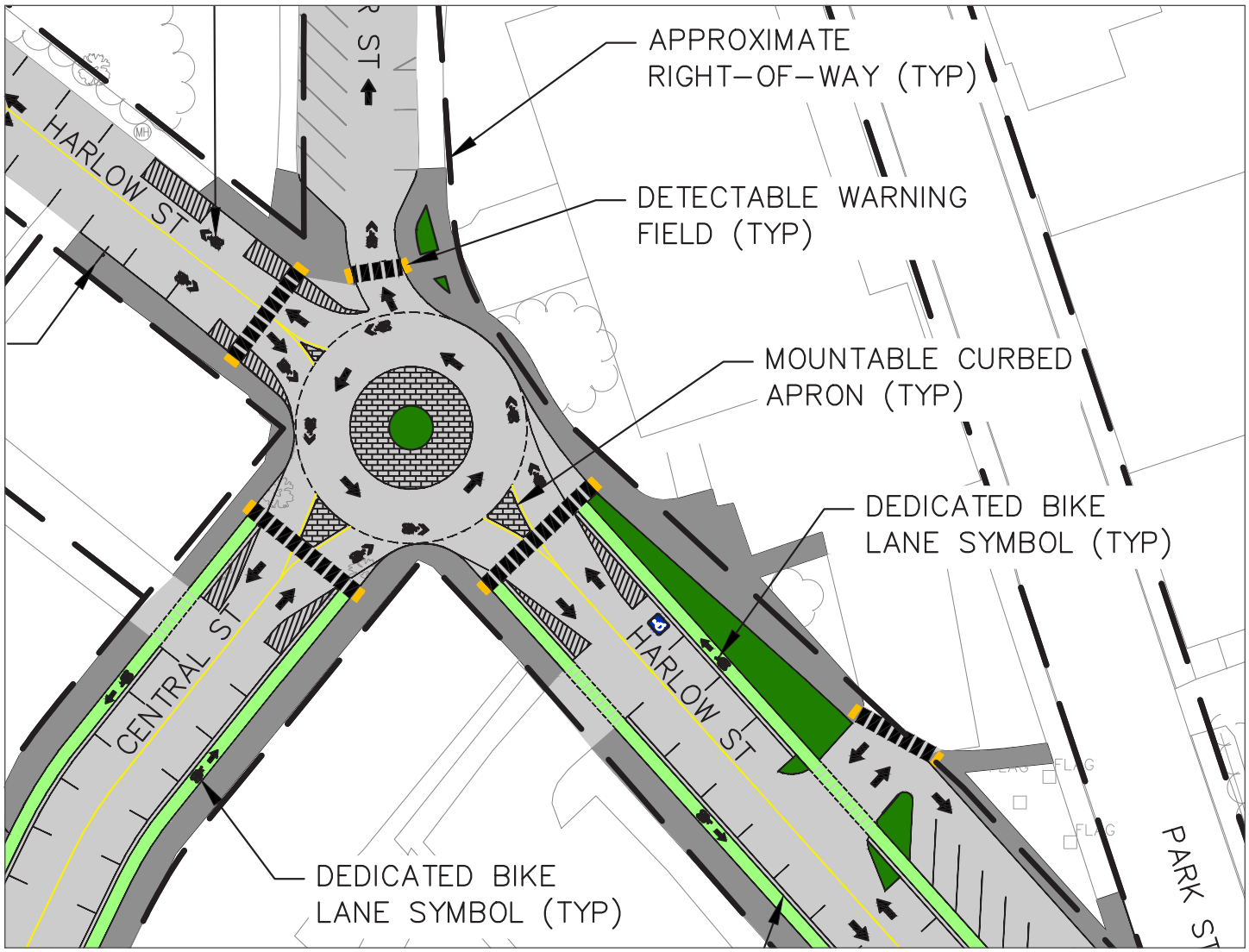


Option C Plan

Change to Two-Way Traffic Pattern with Roundabout Intersection Improvements

Option C: Two-way Traffic with Roundabouts
Harlow / Center / Central Streets Intersection

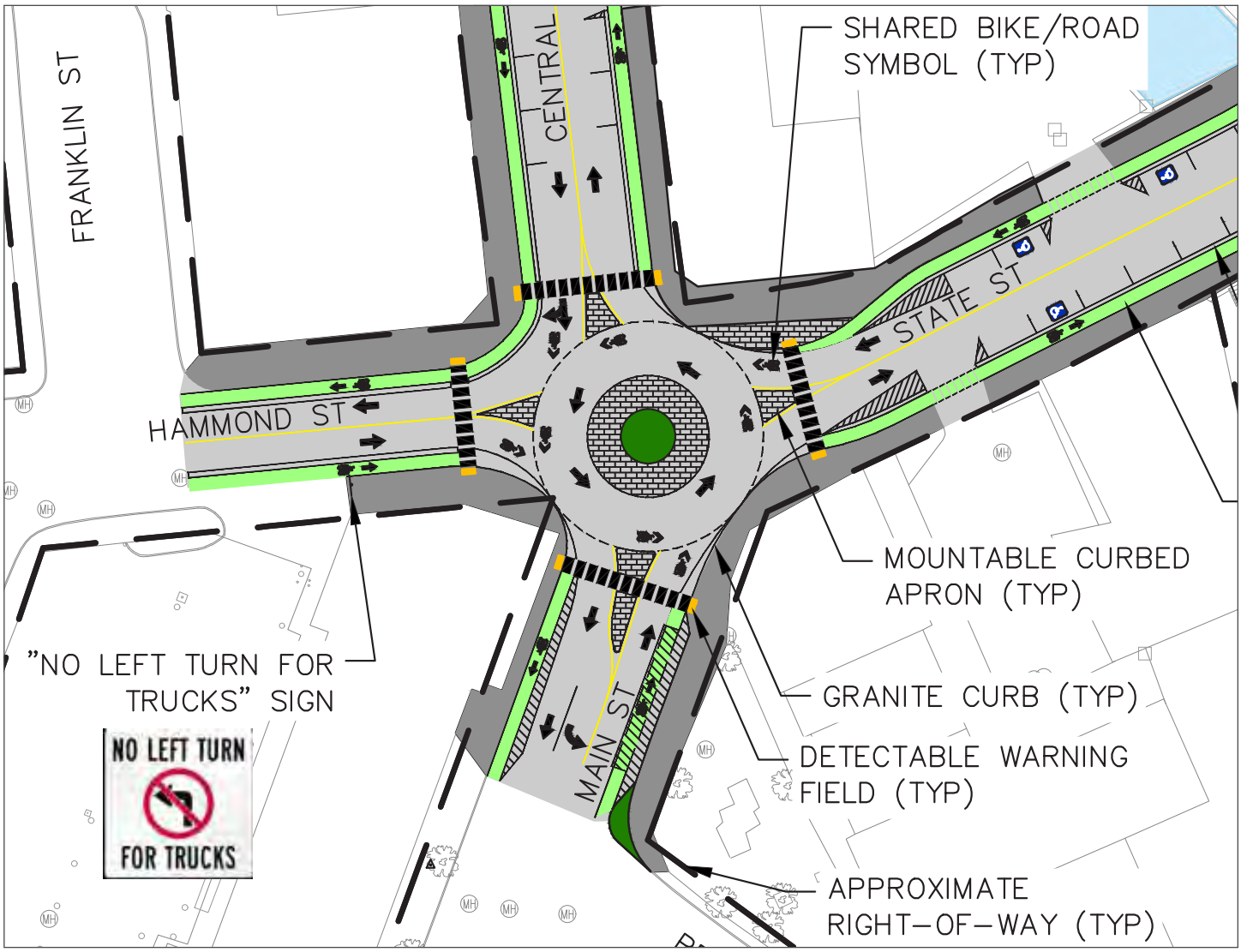
The proposed roundabout for this intersection is a single-lane roundabout that would accommodate a two-way traffic flow. It would consist of an 8-foot radius curbed center island, a 22.5-foot radius mountable apron to accommodate for larger vehicle maneuvers, and a 20-foot wide travel lane/ shared lane. The overall diameter of the proposed roundabout is 85 feet. It is recommended that crosswalks and their associated signage be relocated to about 15 to 20 feet from the outer edge of the roundabout, installed as raised crosswalks and equipped with RRFBs. Diagonal striping is recommended a minimum of 20 feet between on-street parking stalls and crosswalk locations to improve pedestrian visibility. Medians are recommended to separate all lane approaches from the roundabout. Bike lanes should be smoothly transitioned into the roundabout such that they can merge into the roundabout after yielding to other bikes traveling through the roundabout. Bikes may also choose to enter the sidewalk and navigate the roundabout as a pedestrian, using the pedestrian accommodations.



Option C Plan of Harlow / Center / Central Streets Intersection
(two-way traffic flow with roundabouts)

Option C: Two-way Traffic with Roundabouts
Hammond / Central / Main Streets Intersection

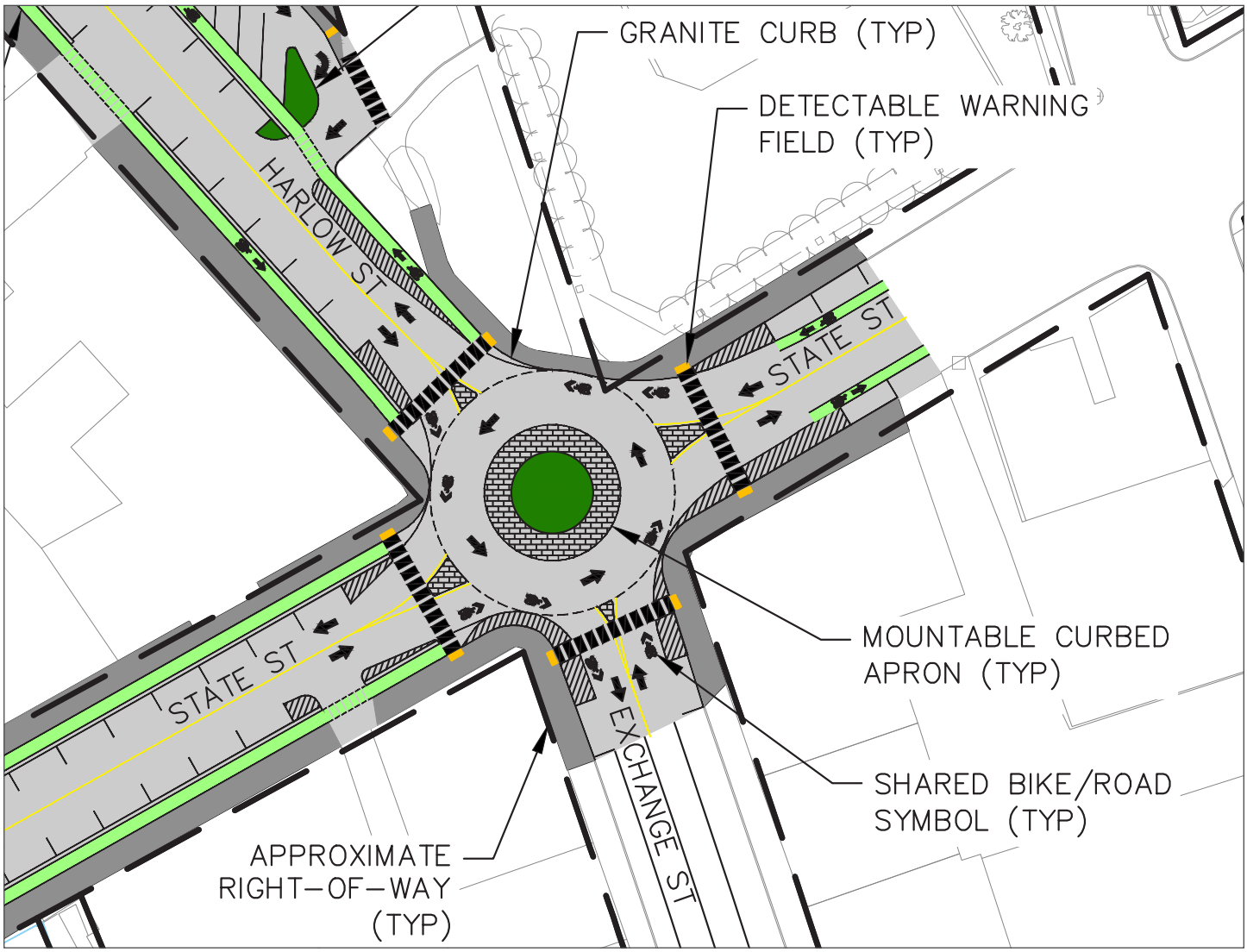
The proposed roundabout for this intersection is a single-lane roundabout that would accommodate a two-way traffic flow. It would consist of a 10-foot radius curbed center island, a 22.5-foot radius mountable apron to accommodate for larger vehicle maneuvers, and a 20-foot wide shared lane. The overall diameter of the proposed roundabout is 85 feet. It is recommended that crosswalks and their associated signage be relocated to about 15 to 25 feet from the outer edge of the roundabout, installed as raised crosswalks and equipped with RRFBs. Diagonal striping is recommended a minimum of 20 feet between on-street parking stalls and crosswalk locations to improve pedestrian visibility. Medians are recommended to separate all lane approaches from the roundabout. Bike lanes should be smoothly transitioned into the roundabout such that they can merge into the roundabout after yielding to other bikes traveling through the roundabout. Bikes may also choose to enter the sidewalk and navigate the roundabout as a pedestrian, using the pedestrian accommodations.



Option C Plan of Hammond / Central / Main Streets Intersection
(two-way traffic flow with roundabouts)

Option C: Two-way Traffic with Roundabouts
State / Harlow / Exchange Streets Intersection

The proposed roundabout for this intersection is a single-lane roundabout that would accommodate a two-way traffic flow. It would consist of a 15-foot radius curbed center island, a 25-foot radius mountable apron to accommodate for larger vehicle maneuvers, and a 20-foot wide shared lane. The overall diameter of the proposed roundabout is 90 feet. It is recommended that crosswalks and their associated signage be relocated to about 10 to 15 feet from the outer edge of the roundabout, installed as raised crosswalks and equipped with RRFBs. Diagonal striping is recommended a minimum of 20 feet between on-street parking stalls and crosswalk locations to improve pedestrian visibility. Medians are recommended to separate all lane approaches from the roundabout. Bike lanes should be smoothly transitioned into the roundabout such that they can merge into the roundabout after yielding to other bikes traveling through the roundabout. Bikes may also choose to enter the sidewalk and navigate the roundabout as a pedestrian, using the pedestrian accommodations.



Option C Plan of State / Harlow / Exchange Streets Intersection
(two-way traffic flow with roundabouts)

Option C: Roundabout Considerations

As previously noted, the Sewall Team recommendation is to maintain one-way traffic in the circular core while making additional improvements (Option A).

The addition of roundabouts for two-way traffic flow (Option C) was a strongly favored option by the public and seriously considered by the team. The positive impacts of roundabouts are substantial - a 90% reduction in fatal crashes, a 76% reduction in injury crashes, reduced vehicular delays and slower vehicle speeds which leads to increased pedestrian safety.

The reasons roundabouts were not chosen consisted of three main factors:

1. Cost. The estimated cost of the three roundabouts shown in Option C is $7.5 million. The estimated cost of the three signaled intersections in Option A, by comparison, is approximately $2.25 million.

2. Real Estate. The amount of right-of-way required to build each roundabout is more than what is available due to grading requirements and pedestrian facility design. As a compromise "urban roundabouts" were considered, which are much smaller in diameter, but lack the pedestrian accommodations that are preferred, such as splitter islands.

3. Truck Maneuvers. The size of vehicles that would be physically able utilize the urban roundabouts is restricted; detailed information on this can be found on the following page and in Appendix B.

Additional reference material about roundabouts is available here:
https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/fhwasa08006.pdf

Example of a roundabout similar in size to proposed

Turning Radius Limitations

The truck turning radius and maneuverability is a major consideration when comparing the alternative between signalized intersections (recommended Option A) or roundabouts (Option C).

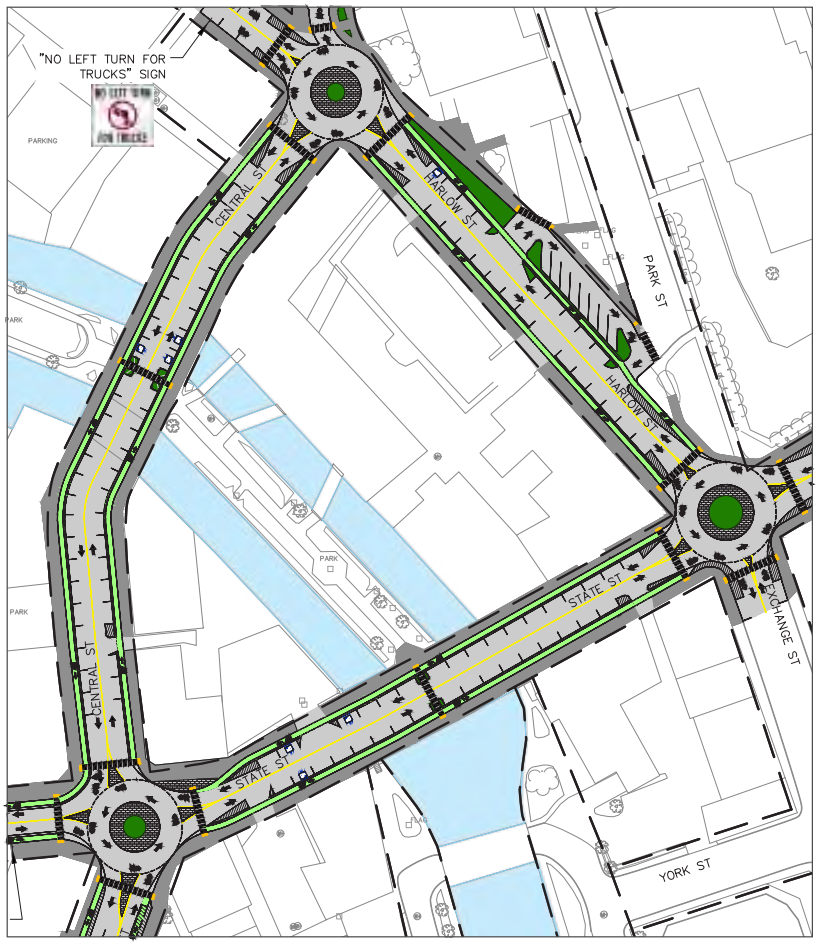
The diagram below references the limitations for city buses, fire trucks, and WB50 sized trucks. A WB62 and WB67 would have significant difficulty maneuvering in downtown if the roundabout option is implemented.

Appendix B provides the turning radius movement tables and diagrams for each intersection.

Truck Size Diagram
The proposed roundabouts are sized for the truck sizes with green checkmarks. ✓

There are some movements with restrictions associated with WB50 truck size. This truck size is marked with a yellow checkmark. ✓

See Appendix B for details on the WB50 truck size movement restrictions.



Option C Plan
Change to Two-Way Traffic Pattern with Roundabout Intersection Improvements

Traffic and Parking Comparisons

The study included a traffic and parking comparison between the three alternatives to assist the Study Committee in the decision making process.

The traffic analysis compared the Level of Service (LOS) at the three intersections in the Circular Core with 20-year future projections (2044). The roundabouts proposed in Option C showed an improved LOS as roundabout intersections at both the State/Harlow/Exchange Streets intersection and the Hammond/Central/Main Streets intersection. The Central/Center/Harlow Streets intersection remained about the same between the two options. See the Traffic Comparison Chart below.

Traffic Comparison Chart

Intersections	OPTION A One-Way with Signalized intersections	OPTION B Two-Way with Signalized intersections	OPTION C Two-Way with Roundabouts
State/Harlow/ Exchange (bottom right)	**C (21.5)**	**C (25.6)**	**A (6.6)**
Central/Harlow (top)	**A (3.1)**	**B (10.1)**	**A (3.5)**
Hammond/ Central/Main (bottom left)	**B (11.4)**	**C (24.4)**	**A (6.6)**

Level of Service General Operating Conditions

A Free flow, with low volumes and high speeds.

B Reasonably free flow, but speeds beginning to be restricted by traffic conditions.

C Stable flow, but most drivers are restricted in the freedom to select their own speeds.

D Approaching unstable flow; drivers have little freedom to select their own speeds.

E Unstable flow; may be short stoppages.

F Forced or breakdown flow; unacceptable congestion; stop-and-go.

(Reference: Highway Capacity Manual, 6th Edition)

The impact to on-street parking was also reviewed for the three alternatives. See the comparison chart below.

Parking Comparison Chart

STREETS	EXISTING CONDITIONS	OPTION A One-Way with Signalized intersections	OPTION B Two-Way with Signalized intersections	OPTION C Two-Way with Roundabouts
Central St	43	44	42	48
Harlow St	34	35	30	34
State St	30	32	30	30
Main St	55	52	52	52
TOTAL	**162**	**163**	**154**	**162**

2. INTERSECTION IMPROVEMENTS

Recommended improvements at intersections provide an opportunity to improve vehicular traffic flow and safety, increase pedestrian safety, and ensure the intersections are right-sized to the location. The recommended improvements are guided by public feedback, the traffic and safety analysis, the integration of bike lanes into the street configuration, and other site-specific needs unique to each intersection.

The intersections with site specific recommendations (outside of the Circular Core discussed in the previous section) are listed below. A description of recommended improvements are provided for the following intersections:

- Exchange Street / York Street Intersection
- Main Street / Broad Street Intersection
- Main Street / Water Street Intersection
- Main Street / Union Street Intersection
- Union Street / High Street Intersection
- Harlow Street / Franklin Street Intersection
- Park /Center / Somerset Streets Intersection
- Washington / Broad / Independent Streets Intersection

The estimated cost of improvements at the intersections as detailed below are included in the greater roadway costs detailed in the previous section. The exception is the Broad / Washington / Independent Street intersection which is a larger effort and costs are provided for both the recommended and alternative options.

Park, Center, and Somerset Street Intersection

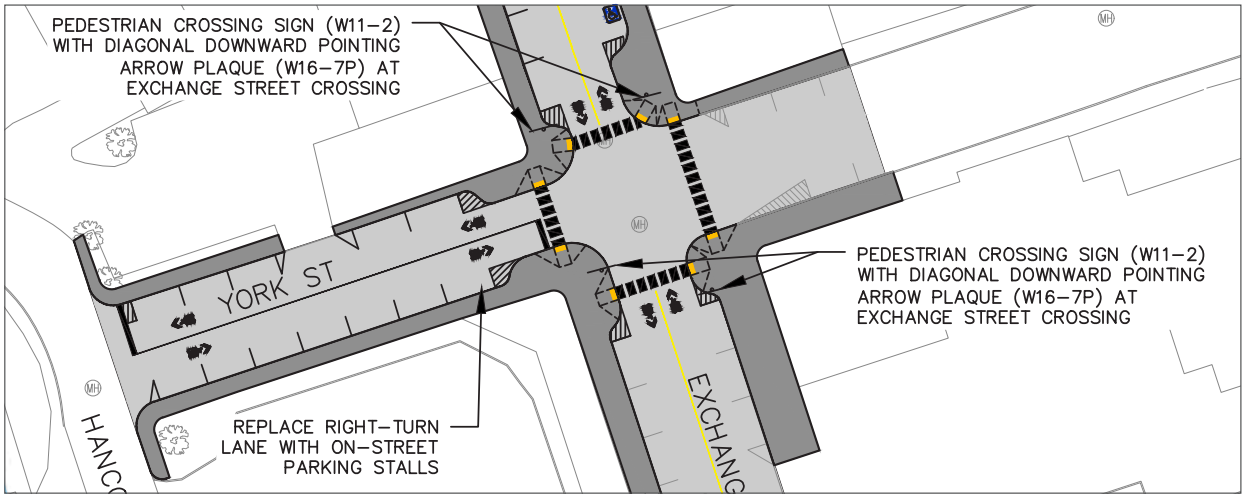
Main and Union Street Intersection

Main and Broad Street Intersection

State, Hammond, Main,Central Street Intersection

Exchange Street / York Street Intersection

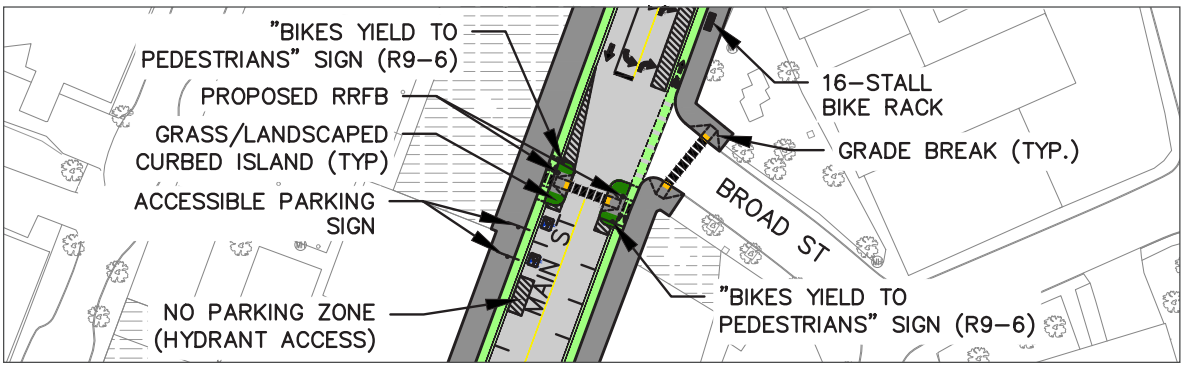
Concerns identified at this intersection include pedestrian crossing safety, as identified by the committee. It is recommended that curb bump-outs be installed at the northwest, southwest, and southeast corners of the intersection of York Street to protect on-street parking and shorten pedestrian crossings. Pedestrian crossing signs (W11-2) with downward facing arrows (W16-7P) are recommended at the crossings of Exchange Street. To remove sight-line conflicts when vehicles simultaneously occupy both the through/left turn lane and right-turn lane, it is recommended that the right-turn lane on the south side of York Street be replaced with two additional on-street parking stalls.



Proposed Plan
Exchange and York Street Intersection

Main Street / Broad Street Intersection

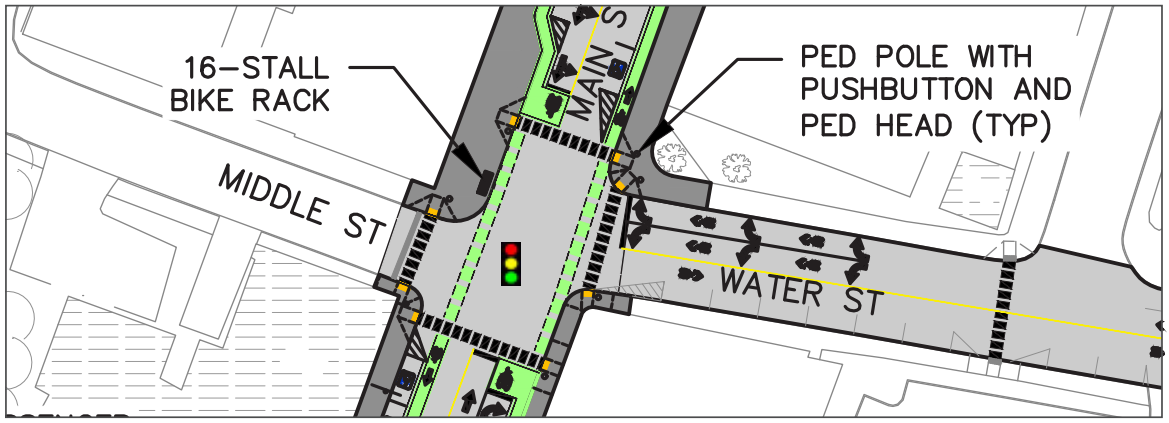
During the initial site walk, the Committee agreed that the traffic signal at this intersection was unnecessary. A signal warrant analysis was performed and determined that traffic flow would not be negatively impacted by the removal of the signal. Through public surveys, the majority of the public agreed the removal of the signal would be beneficial. Therefore, to improve traffic flow and maintain pedestrian safety, it is recommended that the traffic signal at the intersection with Broad Street be removed and replaced with an RRFB at the existing pedestrian crossing south of the intersection. Curb bump-outs are recommended to protect on-street parking and to provide shorter, more visible pedestrian crossings. The Main Street southbound left turn lane is recommended to be maintained in order to accommodate vehicles turning onto Broad Street. All RRFB pole locations and pushbuttons shall be designed in accordance with APS practices.



Proposed Plan
Main and Broad Street Intersection

Main Street / Water Street Intersection

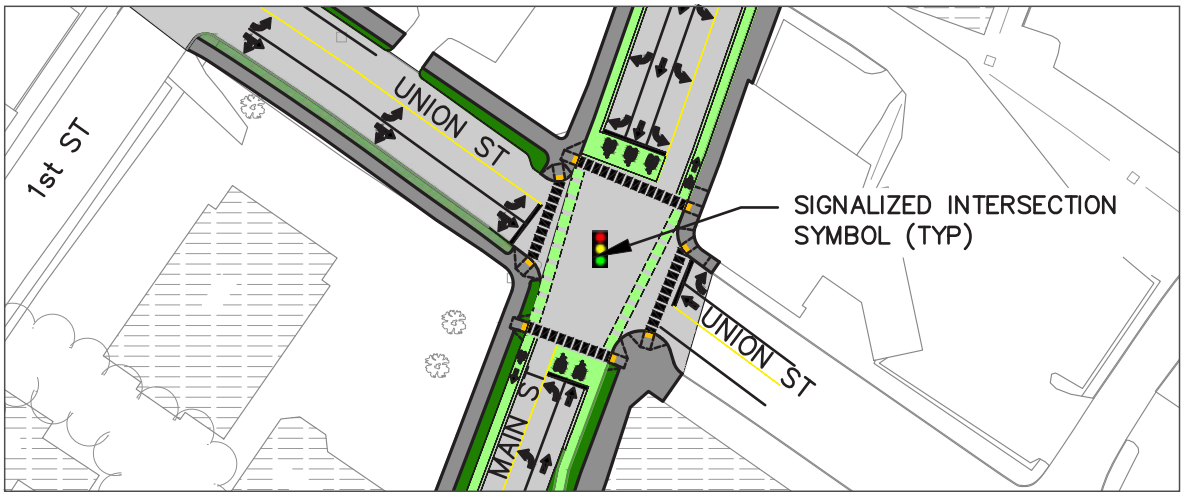
It was determined through public input methods that there is no crosswalk for pedestrians to cross Main Street along the south side of the intersection. A new pedestrian crossing is recommended to be installed at the south side of the Water Street intersection to better accommodate pedestrian traffic between the Pickering Square Parking Garage and the Penobscot Theatre. Curb-bump outs are recommended, where possible, to minimize the length of the crossing. It is also recommended that pedestrian pushbuttons be relocated to pedestrian poles with pedestrian heads and appropriate APS technologies, as necessary, to comply with the Manual of Uniform Traffic Control Devices (MUTCD) and a "No Right Turn on Red" blank out sign be added for the Main Street northbound approach. All pushbuttons and pole locations shall be designed in accordance with APS practices.



Proposed Plan
Main and Water Street Intersection

Main Street / Union Street Intersection

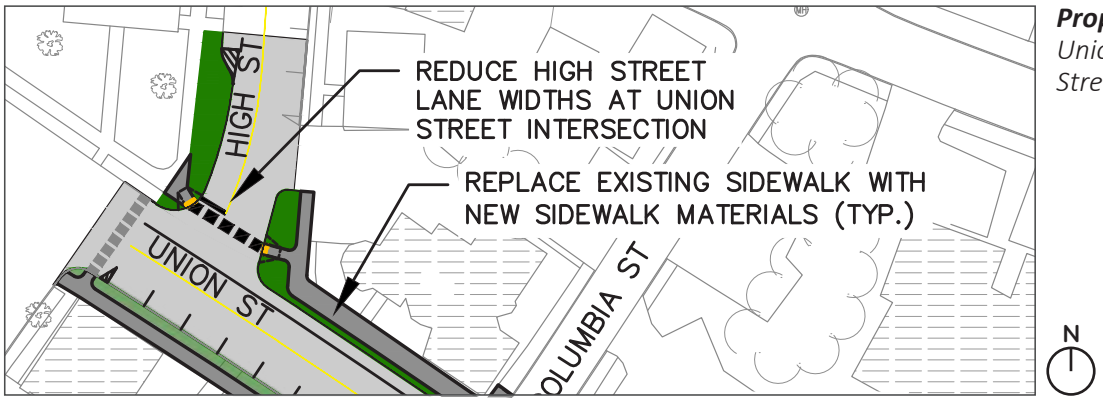
Concerns identified for this intersection include wide roadways and unsafe pedestrian crossings. To narrow the intersection, decrease the length of pedestrian crossings, and reduce turning radii, it is recommended that curb bump-outs be installed on the northwest, southeast, and southwest corners of the intersection. A "No Right Turn on Red" blank out sign should be added for the Main Street southbound approach to further improve pedestrian crossing safety. All pushbuttons and pole locations shall be designed in accordance with APS practices.



Proposed Plan
Main and Union Street Intersection

Union Street / High Street Intersection

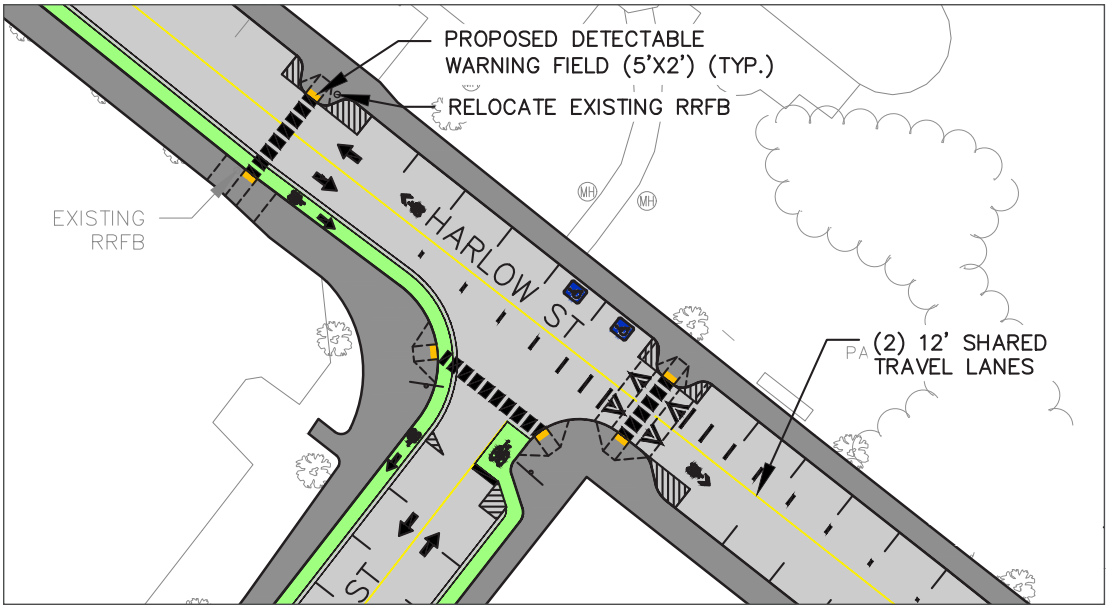
Through public feedback, it was determined that this intersection is difficult to maneuver, due to long wait times turning from High Street onto Union Street. The Unsignalized Intersection Analysis and Queue Analysis sections of this report found the intersection to have a poor LOS and queue lengths, both of which are projected to worsen as traffic volumes increase. It is recommended that access modifications be applied to High Street if the LOS and queue lengths continue to worsen. It is also recommended that curb bump-outs be used to narrow the southbound High Street lanes to a maximum of 12-feet, and to realign High Street to be perpendicular to Union Street, improving sight lines and pedestrian crossing safety.



Proposed Plan
Union and High Street Intersection

Harlow Street / Franklin Street Intersection

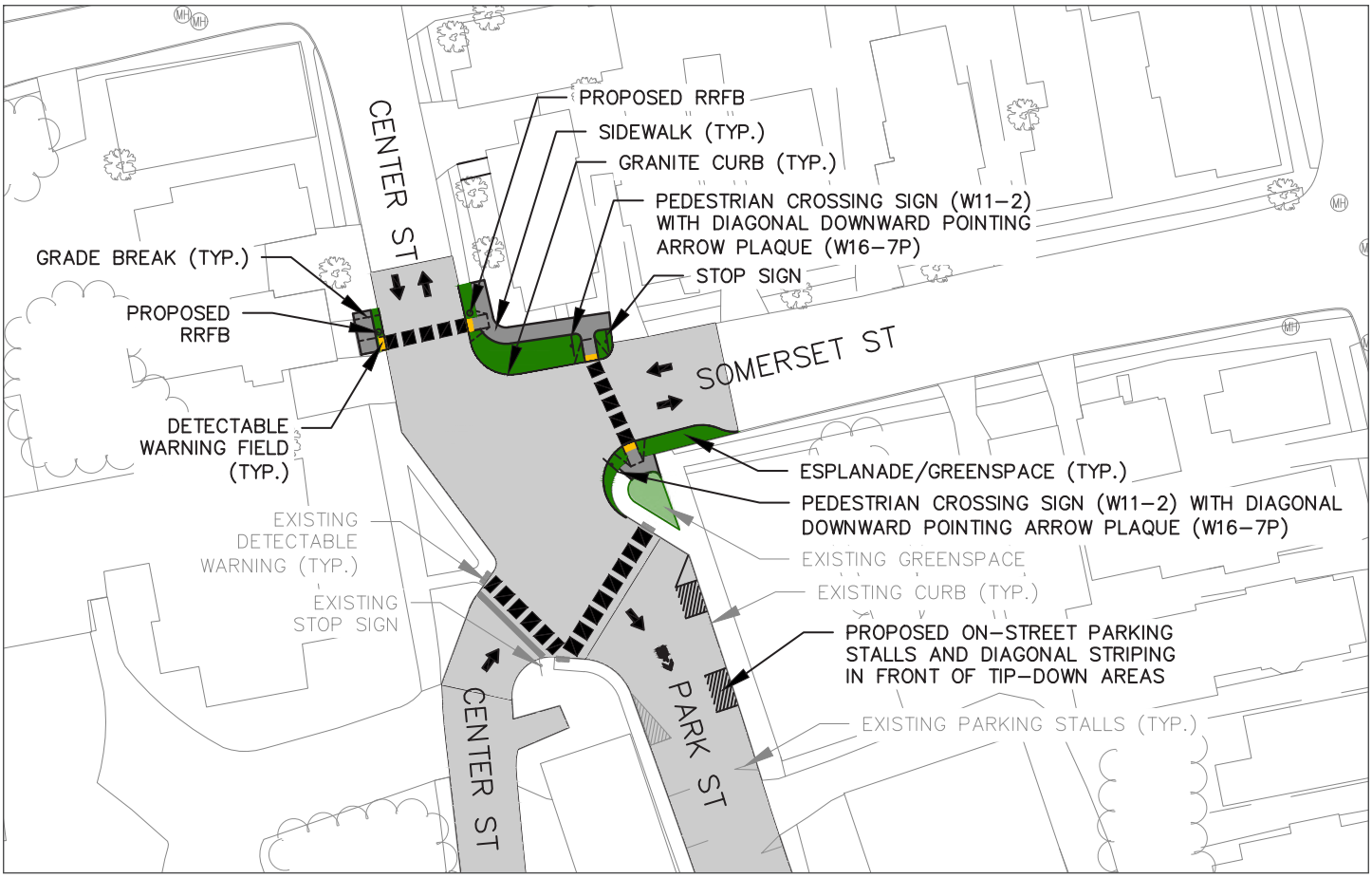
This intersection raised public and Committee concerns with regards to the area of the intersection, as well as pedestrian crossing safety. To address those concerns, it is recommended that curb bump-outs be installed on both sides of the corner of Franklin Street in order to reduce the area of the intersection. It is recommended that the existing Harlow Street crosswalk southwest of the intersection receive curb bump-outs and aa raised crosswalk to reduce vehicular traffic speeds and increase pedestrian visibility. It is recommended that pedestrian crossing signs be installed at the Franklin Street pedestrian crossing.



Proposed Plan
Harlow and Franklin Street Intersection

Park /Center / Somerset Streets Intersection

There were many concerns expressed regarding this intersection by both the Committee and through public input methods, including pedestrian safety when navigating crosswalks and fast-moving traffic. In recent years, the City of Bangor has narrowed and realigned the southerly Center Street approach and added curb bump-outs to the corner of Park and Somerset Streets to reduce the size of the intersection. To build upon these efforts, it is recommended that curb bump-outs be installed at the Somerset Street approach, on both sides of the roadway. It is also recommended that an RRFB be installed at the northerly Center Street pedestrian crossing. These improvements will serve to narrow travel lanes, reduce speeds coming into the intersection, and shorten pedestrian crosswalks along Somerset and Center Street and provide greater visibility to the crosswalk.



Proposed Plan
Park, Center, and Somerset Street Intersection

Washington / Broad / Independent Streets Intersection

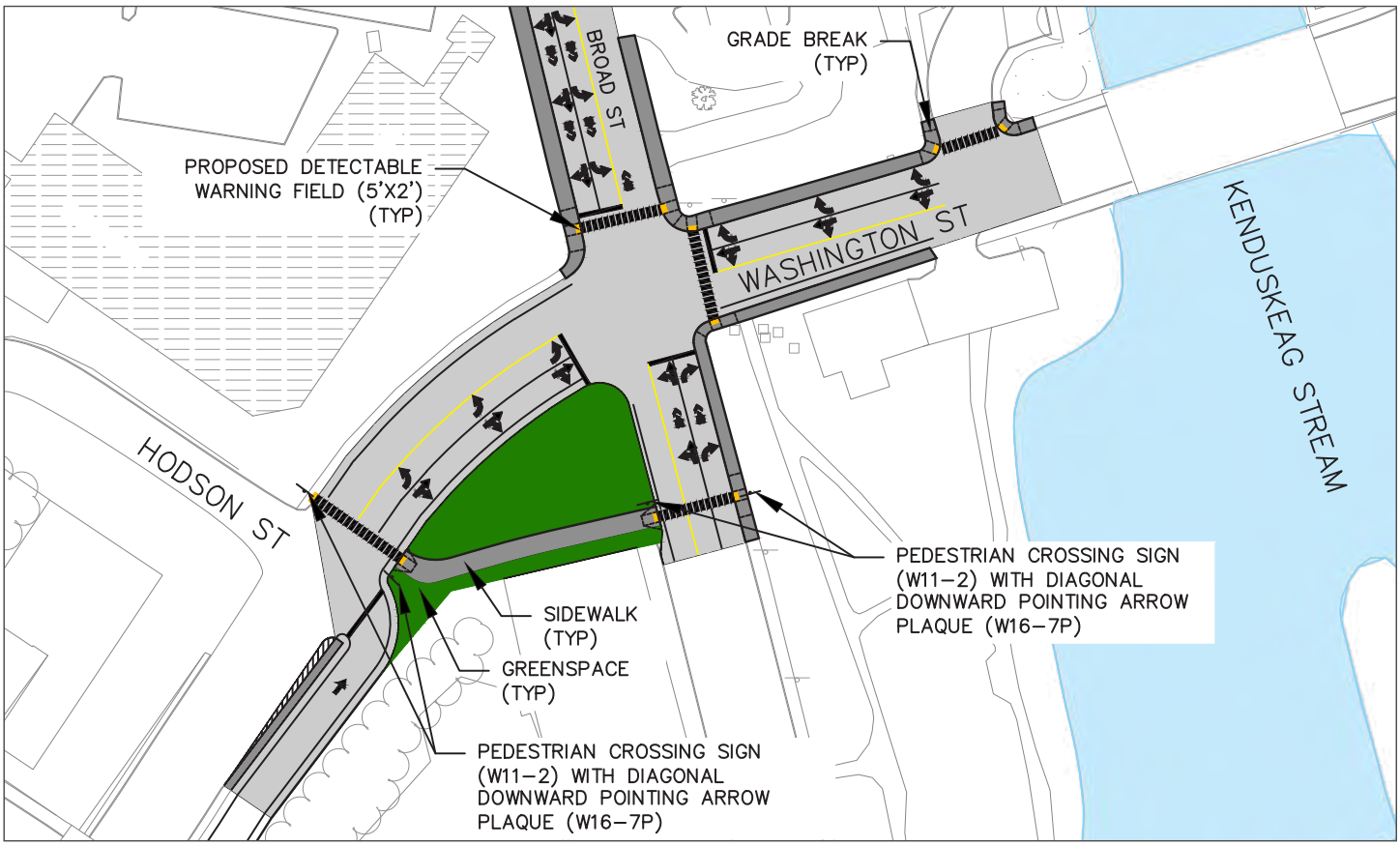
This intersection was not considered within project boundaries during the initial site walk. However, there were numerous concerns documented through public input methods, and the intersection was added to the project area. Concerns identified included unsafe pedestrian and bicyclist crossings, heavy bus traffic reducing traffic flow, and poor sight line visibility for northbound vehicles on Broad Street.

Two design alternatives were considered for this intersection: Option A includes updates to the existing signalized intersection and Option B replaces the traditional signal with a roundabout. Option A is recommended because it adds pedestrian infrastructure and costs substantially less than the introduction of a roundabout. Additional considerations and limitations can be found in Appendix B.

Option A: Traditional Signal Improvements (recommended)

To address the identified concerns at this intersection, it is recommended that the existing slip-lane from Independent Street to Broad Street be removed, additional pedestrian infrastructure be added to Independent and Broad Street, and signal phasing be modified to include an exclusive pedestrian phase. Alternatively, dynamic "no turn on red" signs could be installed on the northerly, and westerly approaches.

The signalized intersection improvements (Option A) is estimated to be $475,000. This cost includes the sidewalk replacement, stormwater infrastructure, curbing and esplanades.



Option A Plan
Broad, Washington, and Independent Street Intersection

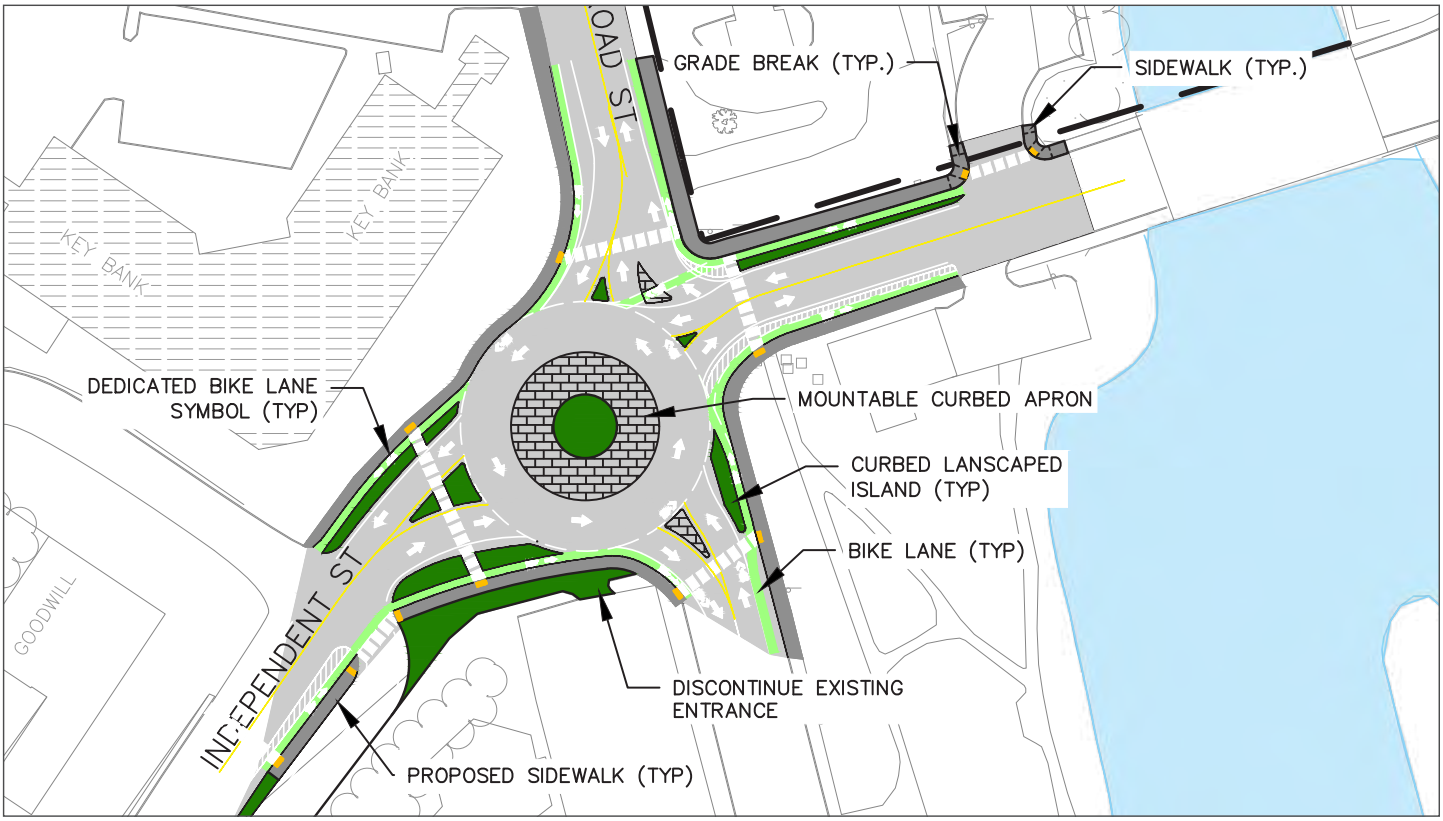
Option B: Roundabout (alternative)

As an alternative to the traditional signal improvements, the Study considered replacing the signaled intersection with a roundabout. The roundabout would accommodate pedestrian, vehicular, and bicycle traffic efficiently and safely, reducing the number and severity of vehicular crashes, and the number of conflict points for pedestrians and bikes. This proposed intersection would improve traffic flow, and remove the obstructions creating sight line issues.

The proposed roundabout would consist of a 15-foot radius curbed center island, a 35-foot radius mountable apron to accommodate for larger vehicle maneuvers, and a 20-foot wide shared lane. The overall diameter of the proposed roundabout is 110 feet. It is recommended that crosswalks and their associated signage be relocated to about 15 to 25 feet from the outer edge of the roundabout, installed as raised crosswalks and equipped with RRFBs.

Medians are recommended to separate all lane approaches from the roundabout. Bike lanes should be smoothly transitioned into the roundabout such that they can merge into the roundabout after yielding to other bikes traveling through the roundabout. Bikes may also choose to enter the sidewalk and navigate the roundabout as a pedestrian, using the pedestrian accommodations.

The roundabout intersection (Option B) is estimated to be $3,500,000. This cost includes the roadway reconstruction, stamped concrete, new sidewalk, stormwater infrastructure, curbing, median islands and RRFBs.



Option B Plan
Broad, Washington, and Independent Street Intersection

N

Turing Radius Limitations for Washington / Broad / Independent Streets Intersection

The truck turning radius and maneuverability of the recommended signalized intersection (Option A) is compared to the alternative roundabout (Option B) in the table below. The table references the limitations for city buses, fire trucks, and WB67sized trucks. See a diagram of the WB67 truck size on page 44 and Appendix B for graphic representation of the turning radii.

Turning Radius Limitation Table

INTERSECTION TURN	SIGNALIZED INTERSECTION (OPTION A)	ROUNDABOUT INTERSECTION (OPTION B)
Right onto Washington from Broad	• WB67, Bus, and Fire can maneuver • WB67 occupies opposing traffic lanes	• WB67, Bus, and Fire can maneuver • WB67 goes over entrance mountable curb island • WB67 goes into other lane at exit
Straight on Broad (heading north)	• No restrictions	• WB67, Bus, and Fire can maneuver • WB67 goes over exit mountable curb island • WB67 goes into other lane at exit
Left onto Independent from Broad	• WB67, Bus, and Fire can maneuver • WB67 occupies all Broad St lanes and opposing Independent St lanes	• WB67, Bus, and Fire can maneuver • WB67 goes over center mountable curb island
Right onto Broad from Washington	• WB67, Bus, and Fire can maneuver • WB67 occupies all Washington St lanes and one opposing Broad St lane	• WB67, Bus, and Fire can maneuver • WB67 goes over exit mountable curb island • WB67 goes into other lane at exit
Straight on Independent from Washington	• No restrictions	• WB67, Bus, and Fire can maneuver • WB67 goes over center mountable curb island
Left on Broad from Washington	• WB67, Bus, and Fire can maneuver • WB67 occupies both Washington St lanes	• WB67, Bus, and Fire can maneuver • WB67 goes over center mountable curb island • WB67 goes into other lane at exit
Right on Independent from Broad	• WB67, Bus, and Fire can maneuver • WB67 occupies all Broad St lanes & opposing lanes	• No restrictions
Straight on Broad (heading south)	• No restrictions	• WB67, Bus, and Fire can maneuver • WB67 goes over center mountable curb island • WB67 goes into other lane at exit
Left on Washington from Broad	• WB67, Bus, and Fire can maneuver • WB67 occupies both Broad St lanes	• WB67, Bus, and Fire can maneuver • WB67 goes over center mountable curb island
Right on Broad from Independent	• WB67, Bus, and Fire can maneuver • WB67 occupies all Independent St & Broad St lanes	• WB67, Bus, and Fire can maneuver • WB67 goes over center and exit mountable curb island • WB67 goes into other lane at exit
Straight on Washington from Independent	• No restrictions	• WB67, Bus, and Fire can maneuver • WB67 goes over center mountable curb island • WB67 goes into other lane at exit
Left on Broad from Independent	• WB67, Bus, and Fire can maneuver • WB67 occupies both Independent St lanes	• WB67, Bus, and Fire can maneuver • WB67 goes over center mountable curb island

3. BICYCLE INFRASTRUCTURE

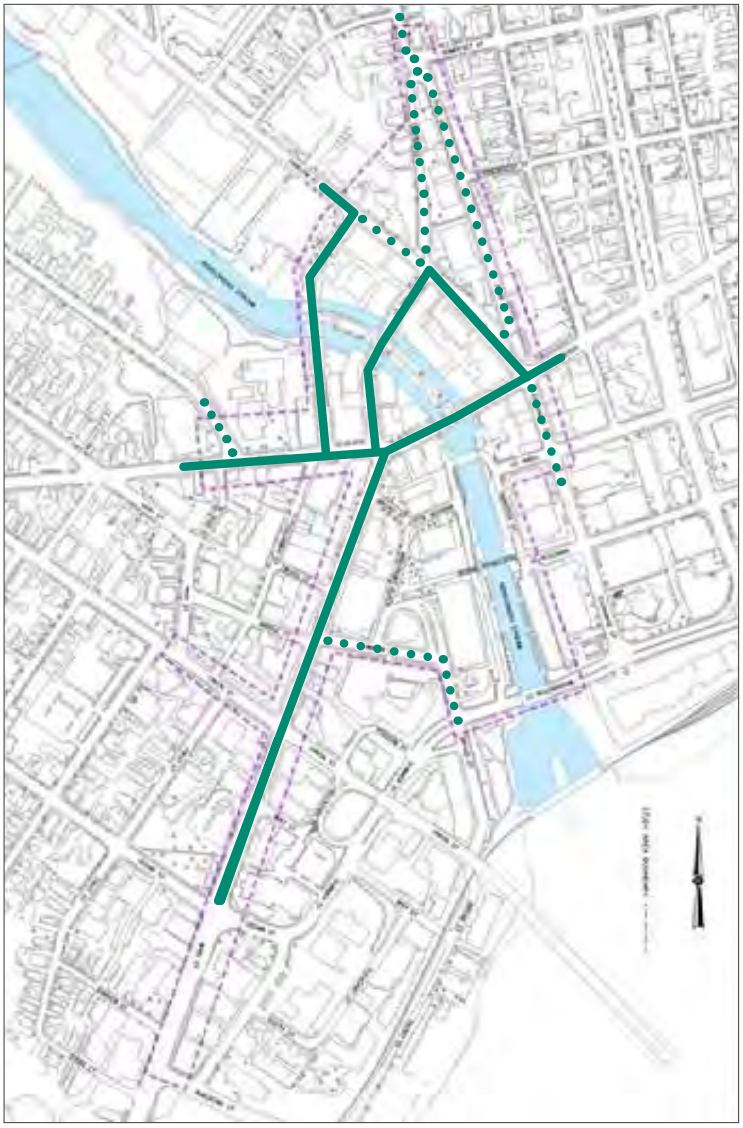
As noted in the previous chapter, the establishment of a safe and connected network for bicycles is an important element to include the roadway designs within the study area. It is recommended that formal bike lanes be constructed on most major roadways, where found to be feasible. The approach to bike lane design is recommended to be separated/ protected one-way travel lanes. Where there is not enough room to accommodate formal bike lanes or where there is very low vehicle traffic volume, a shared lane should be established.

Bike Lanes

Separated/protected one-way bike lanes are recommended on Main Street, Hammond Street, Franklin Street, Central Street, State Street, Harlow Street, and Center Street, within the study area.

Shared Lanes

Shared lanes are recommended on Harlow Street (from Franklin Street to Central Street), Park Street, Center Street, Exchange Street, Water Street, Court Street, and Main Street (from Water Street to Union Street).



Proposed Formal Bike Lanes / Shared Lanes

Roadways with bike lanes
Roadways shared lanes

Separated/Protected One-Way Bike Lane

The recommended configuration for most of the bike lanes in the study area is a separated/ protected one-way bike lane located between the on-street parking and the sidewalk, with a physical median (or buffer) separating the on-street parking from the bike lane.

Bicycle travel direction should always match that of the roadway's vehicular traffic pattern. For roadways with two-way traffic flow (such as Main Street), it is recommended that bike lanes be installed on both sides of the roadway. For roadways with one-way traffic flow (such as Central Street), it is recommended that a single bike lane be installed on the right side of the roadway.

Separating the cyclists from the vehicular travel lane with on-street parallel parking provides a physical separation between bikes and moving vehicles. The additional median buffer separating the cyclist from the parked cars, provides additional protection to cyclists from being doored, and from vehicles entering parallel parking stalls from travel lanes.

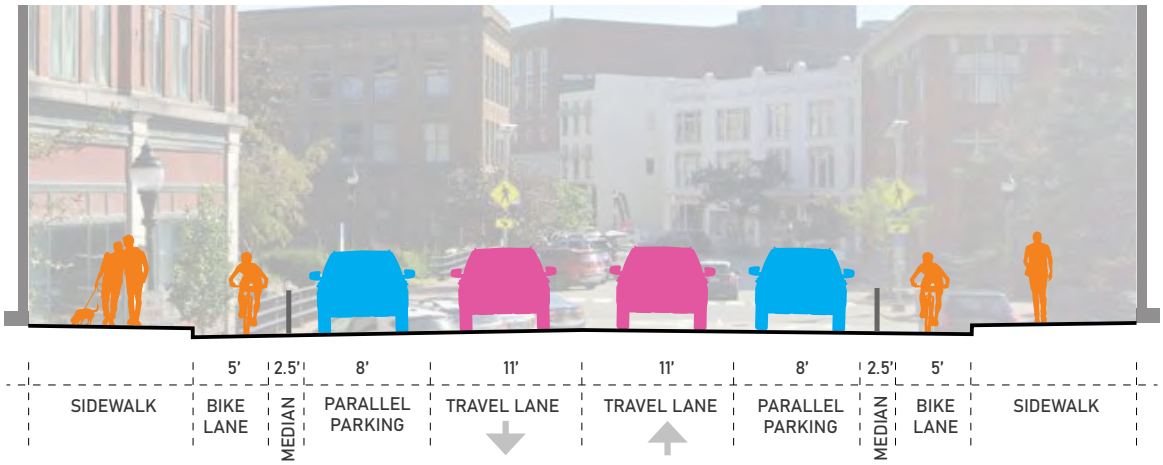
An analysis of potential bike lane designs is provided later in this section. Of the potential alternatives studied, this approach was determined to provide the function, maneuverability, safety, and comfort of bikers and vehicular traffic. This design approach also aligns with the feedback heard through public engagement (see page 18 in Chapter 2 for additional information).

Below are example sections of the bike lane design for both two-way and one-way roadways. Plans presented throughout this report will also show this separated bike lane configuration.

Separated Bike lane Two-Way Travel Roadway

Typical cross section uses Central Street as example.

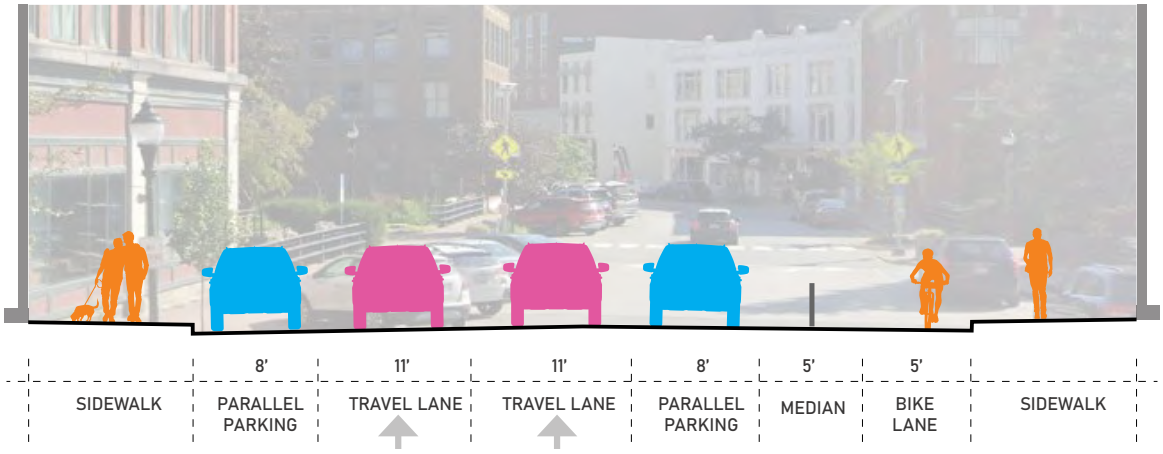
This is representative of potential conditions if Central Street established two-way traffic.



Separated Bike lane One-Way Travel Roadway

Typical cross section uses Central Street as example.

This is representative of potential conditions if Central Street remains one-way.



Median / Buffer Treatments

The proposed median between the bike lane and parallel parking serves as a protective space that physically separates the bikes from the travel lane and protects cyclists from parked car door openings.

Vertical features should be used to create a physical separation in the median to serve as buffer between the bike lane and the roadway. Vertical features include bollards, planters, curbing, among other potential installations. These may be useful in locations where there is no on-street parking separating the travel lane or at approaches to intersections.

It is recommended that the proposed median surface be flush with the parking and bike lanes striped, and delineator posts installed as a minimum physical separation barrier between parked vehicles or vehicular traffic and bicyclists.

Examples of potential median treatments are presented in the images on this page.

Paint Only (not recommended)

Delineator Posts

Bollards and Curb Sections

Bike Weave

Bollards and Planters

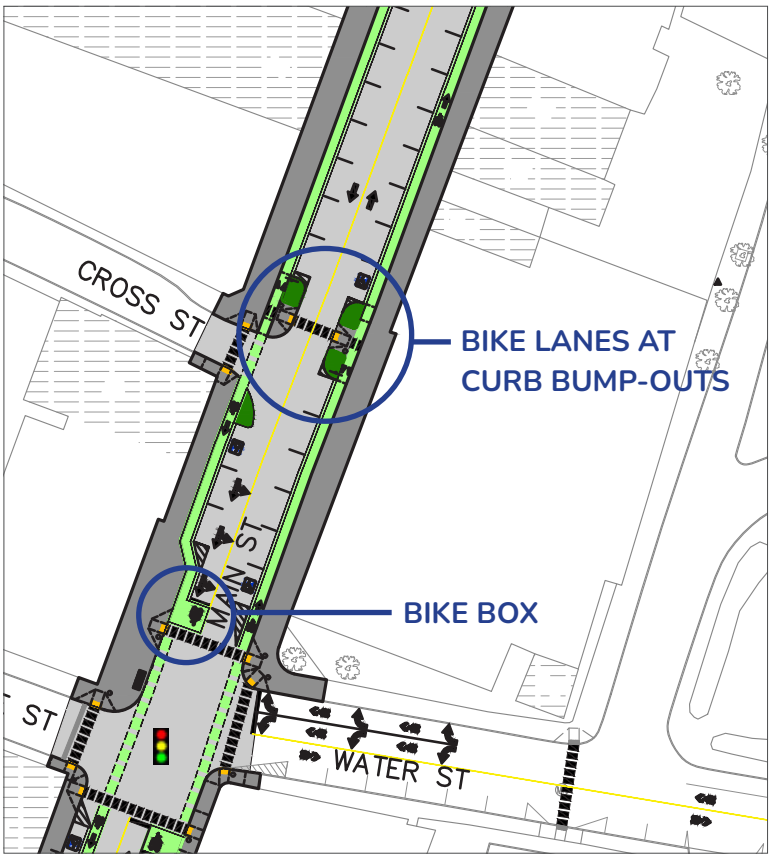
Planters with Bollards at Intersection

Guardrail and Planter with bike supports

Separated One-Way Bike Lanes at Curb Bump-outs and Intersections

Sidewalk bump-outs are proposed at mid-block crosswalks and intersections to provide shorter pedestrian crossings and improved pedestrian visibility to drivers. At the points where bike lanes intersect with sidewalk bump-outs, the recommendation is to elevate the bike lanes to match the sidewalk elevation. This will ensure that pedestrians only experience a single grade change and tactile mat when crossing the vehicle travel lanes.

At points where the bike lane and sidewalk bump-outs intersect, the bike lane design would gradually ramp up (like a speed table). Signage would also provide sufficient warning to the bicyclists approaching the sidewalk crossing, with indicators requiring cyclists to yield to pedestrians.



Main Street Bike Lane Plan

Painted Bike Boxes at Intersections

At signalized intersections, bike boxes are proposed to increase visibility of bicyclists, to allow bicyclists to make multiple turn movements, help prevent 'right-hook' conflicts with turning vehicles, and provide priority for bicyclists. Bicyclists are expected to abide by all traffic signal indications and turn restrictions at major intersections. Bike boxes will help provide smooth transitions from one separated bike lane to another.

Painted Bike Box at Intersection

Shared Lanes

In an effort to provide a cohesive bike travel network throughout the downtown district with connections to neighboring parts of Bangor, it is recommended that shared lanes be striped in key locations where there is not space for separate bike lanes to promote bike travel into downtown.

Shared lanes are recommended in areas where right of way widths are not sufficient to provide a dedicated bike lane while also maintaining sufficient travel lanes, sidewalks and on-street parking stalls. The diagram at the start of this section (page 54) identifies the shared lane locations in the study area with a dotted line. Two locations with recommended shared lanes are listed below:

- Shared lanes on Water Street and Broad Street, north and south of the intersection with Washington Street, would connect dedicated bike lanes on Main Street to the Penobscot River Walkway and Waterfront Park area.
- Shared lanes on Court Street would allow bikers a lower volume street to enter and exit the downtown area, compared to continuing along Hammond Street. It would also provide access to the Kenduskeag Stream Trail through Coe Park.

Shared Lane Striping Examples

Bike Lane Design Alternatives Study

Throughout the design process, several bike lane designs were considered with respect to ease of use, comfort and safety, and existing design guidance. The Sewall Team looked at site conditions, the connection with the larger network of potential cycling routes, and reviewed public comments as part of the bike lane design process. Ultimately, the separated one-way bike lane (positioned between on-street parking and the curb and separated by a painted median) was selected as the best design solution.

Since various bike lane design alternatives were included in the study process, they have been described as a reference in Appendix B.

4. STREET IMPROVEMENTS

There are several stretches of roadway throughout downtown Bangor, each of which require unique and individualized improvements in order to implement the project goals effectively. Each roadway and the associated recommendations are described below.

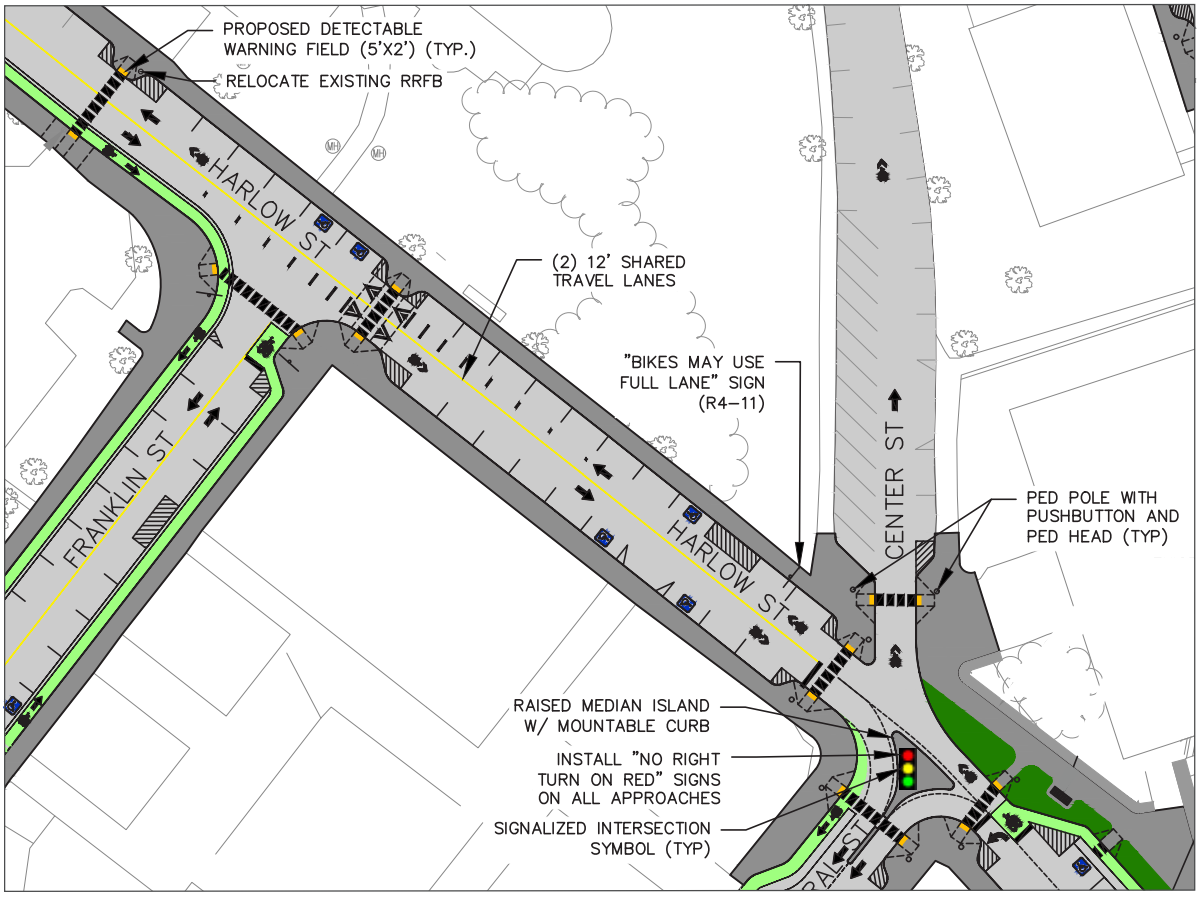
Harlow Street (Franklin to Central Street)

Concerns along this portion of Harlow Street, collected during the initial site walk and through public input methods, include fast-moving vehicular traffic, improper use of lanes, and pedestrian safety.

This segment of Harlow Street provides 37 to 39 feet of existing pavement width, with existing sidewalks and parallel on-street parking on either side of the travel lanes. The existing pavement width in this section is insufficient to provide dedicated bike lanes. Therefore, it is recommended that this section be striped to provide 12-foot shared lanes to accommodate bicycles and slow the speed of vehicular traffic.

It is recommended that ADA accessible on-street parallel parking stalls be relocated to easily accessible stall locations. It is also recommended that a speed table be added at the Harlow Street crosswalk at the Franklin Street intersection along with curb bump-outs at the intersection and at the library crosswalk to shorten crosswalks and increase pedestrian visibility.

The estimated cost of improvements in this section is $2,400,000 (see Appendix E for additional cost estimate details). This cost includes the roadway reconstruction, new sidewalks, street trees, furnishings, lighting, curb bump outs and stormwater infrastructure.



Proposed Plan
Harlow Street (Franklin to Central Street)

Harlow Street (Central to State Street)

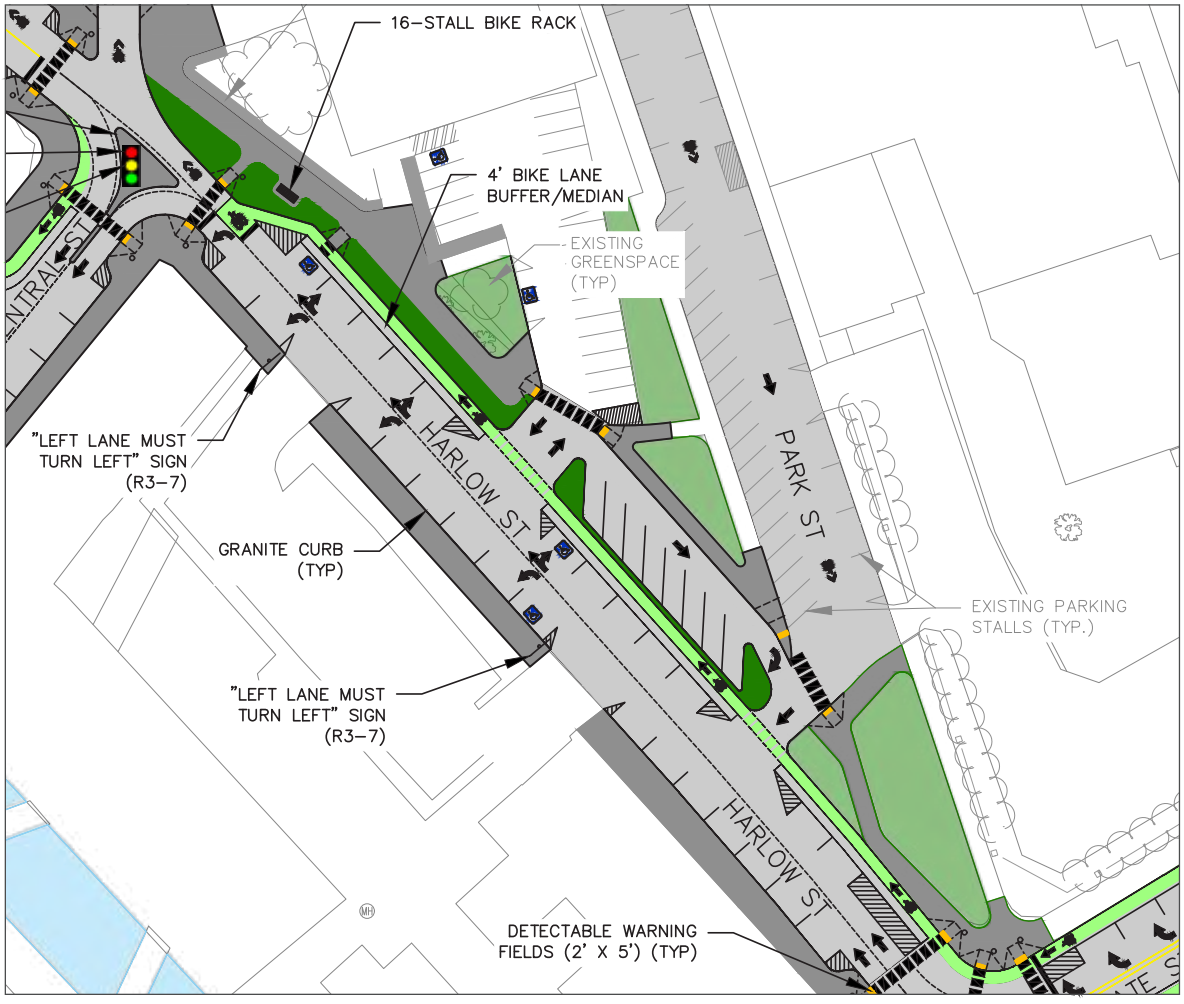
Concerns along this portion of Harlow Street, collected during the initial site walk and through public input methods, include fast-moving vehicular traffic, improper use of lanes, and pedestrian safety.

This segment of Harlow Street between State Street and Central Street provides 45 to 71 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes.

It is recommended, for traffic calming purposes, and to provide for bicycles, that this portion be narrowed to provide 11-foot travel lanes, 8-foot on-street parking stalls, and 4 to 5-foot bike lanes with 2.5-foot buffers. In areas where sidewalks are impacted, a minimum width of 8-feet is desired.

It is also recommended that the angled on-street parking on the north side of the street be converted to parallel parking, and curb bump-outs be installed to protect on-street parking and shorten crosswalks. To address public concerns about the removal of on-street parking spaces, it is recommended that a dedicated angled parking lot be installed adjacent to the Bangor City Hall parking lot.

The estimated cost of improvements in this section is $3,400,000 (see Appendix E for additional cost estimate details). This cost includes the roadway reconstruction, new sidewalks, curb bump outs, bike lanes and bollards, street trees, lighting, furnishings, stormwater infrastructure and the new parking area.



Proposed Plan

Harlow Street (Central to State Street)

Exchange Street (State Street to York Street)

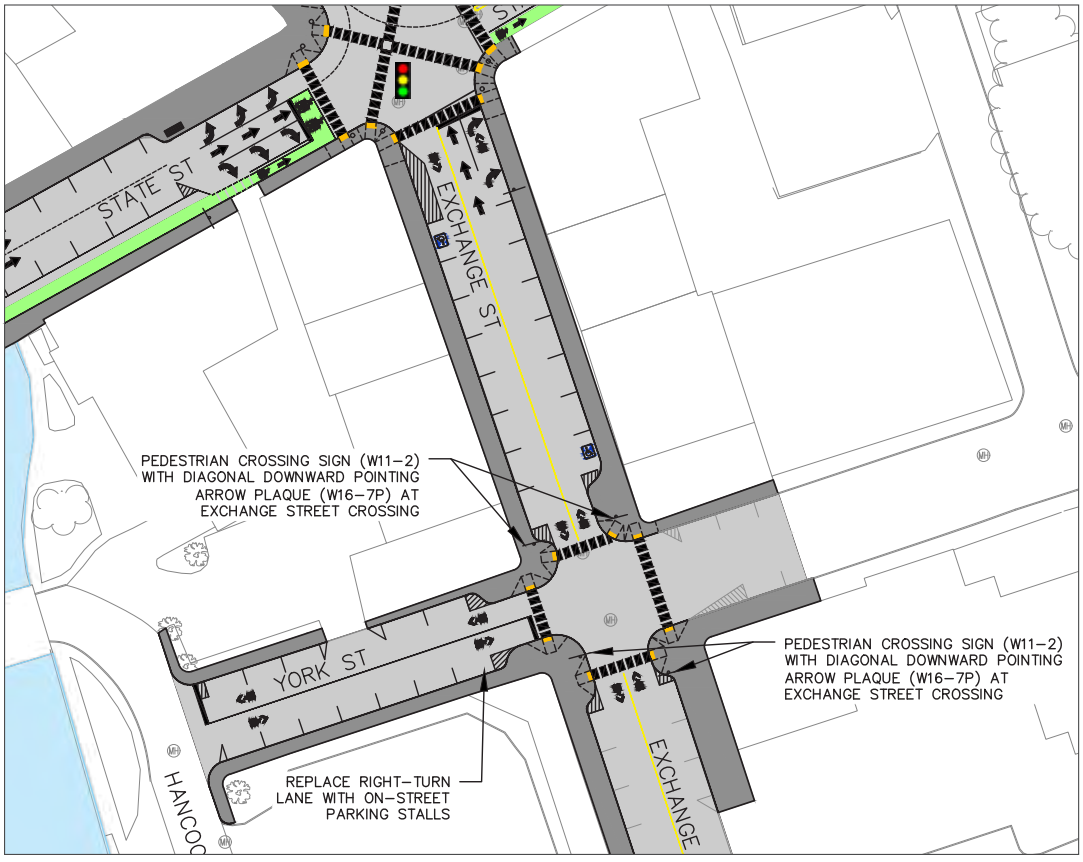
The segment of Exchange Street between State Street and York Street provides 45 to 47 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes. Concerns identified for this section of Exchange Street include pedestrian crossing safety and vehicular speeding, as identified by the Committee. It is recommended, for traffic calming purposes, and to provide continuity of the downtown bicycle network, that this portion be striped as a 12-foot shared lane, with no changes to on-street parallel parking.

The estimated cost of improvements in this section is $10,000. This cost includes the painting of sharrows in the travelway. See Appendix E for additional cost estimate details.

York Street (Kenduskeag Plaza East to Exchange Street)

It is recommended that York Street sidewalks be replaced using the current preferred sidewalk materials. To increase the connectivity of Kenduskeag Plazas East and West, it is recommended that York Street west of Exchange Street be striped as 12-foot shared lanes. This will allow bicycles to circulate from Exchange Street, through the Kenduskeag Plaza, to downtown amenities and other access points of the proposed bike network. Lastly, it is recommended that the right-turn lane be removed and replaced with two on-street parking stalls and a curb bump out to improve vehicle sight lines.

The estimated cost of improvements in this section is $885,000. This cost includes road reconstruction, new sidewalks, lighting, street trees, furnishings, striping, curb bump outs, and updated stormwater infrastructure. See Appendix E for additional cost estimate details.



Proposed Plan
Exchange Street (State Street to York Street) and York Street (Kenduskeag Plaza East to Exchange Street)

State Street (Hammond Street to Exchange Street)

The segment of State Street between Hammond Street and Exchange Street provides 42 to 49 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes.

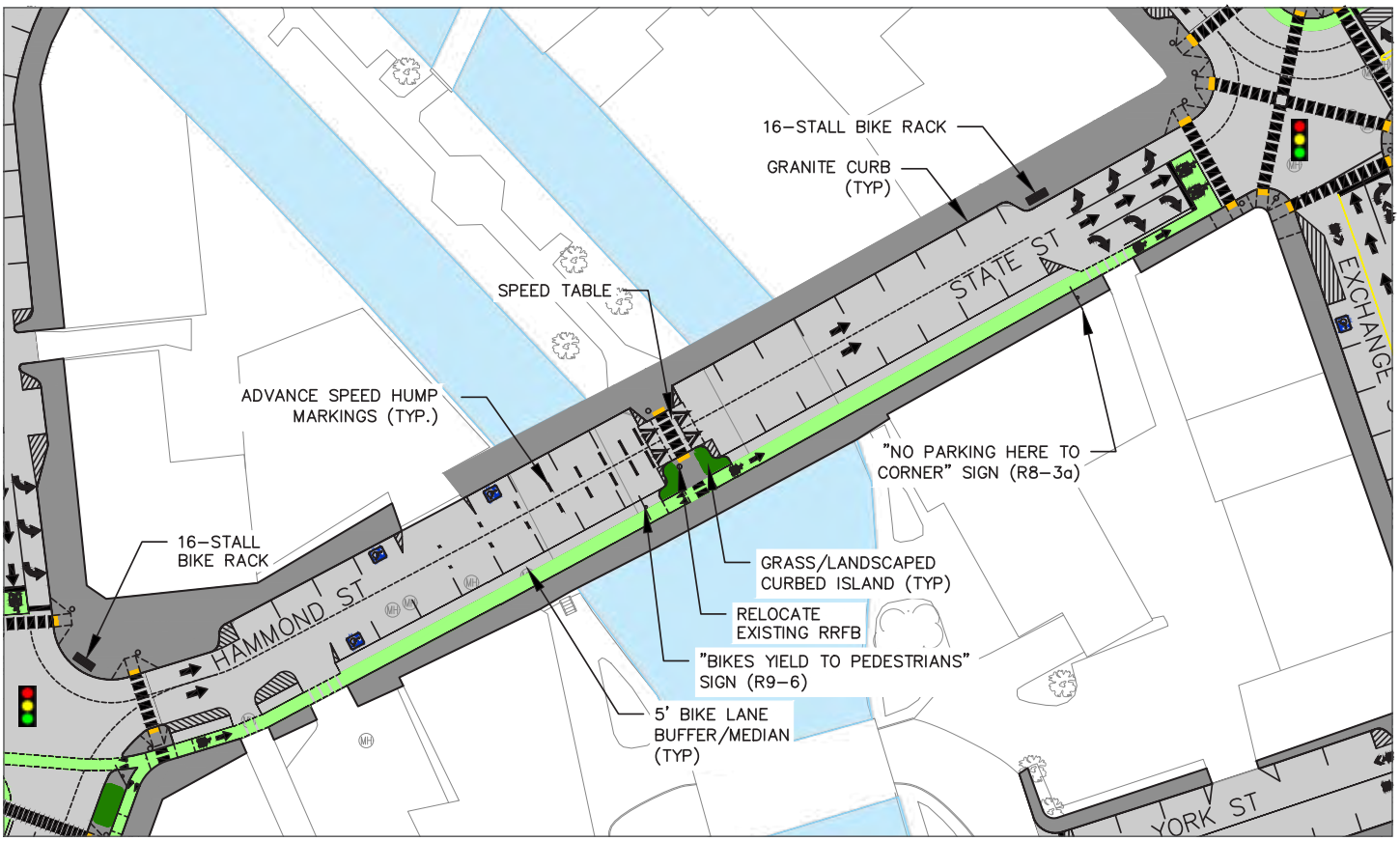
Many concerns, identified by the Committee and through public input, have been heard regarding fast moving vehicular traffic, wrong-way driving, pedestrian safety, and unsafe on-street parking within this section.

It is recommended, for traffic calming purposes, and to provide for bicycles, that this portion of State Street be narrowed to provide 11-foot travel lanes, 8-foot on-street parking stalls, and a 5-foot bike with 2.5-foot buffers. In areas where sidewalks are impacted, a minimum width of 8-feet is desired.

Angled on-street parking on the north side of the street is recommended to be replaced with parallel parking stalls with curb bump-outs to protect parking.

To better protect pedestrian crossing from traffic and to increase pedestrian visibility, it is recommended that a raised speed table be installed at the current crosswalk location.

The estimated cost of improvements in this section is $2,900,000. This cost includes the roadway reconstruction, new sidewalks, curb bump outs, bike lanes and bollards, street trees, lighting, furnishings, stormwater infrastructure and a RRFB. See Appendix E for additional cost estimate details.



Proposed Plan
State State (Hammond Street to Exchange Street)

Central Street

Central Street provides 38 to 49 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes. Concerns identified on Central Street include on-street parking hazards and illegal parking, fast moving vehicular traffic, and unsafe pedestrian maneuvers.

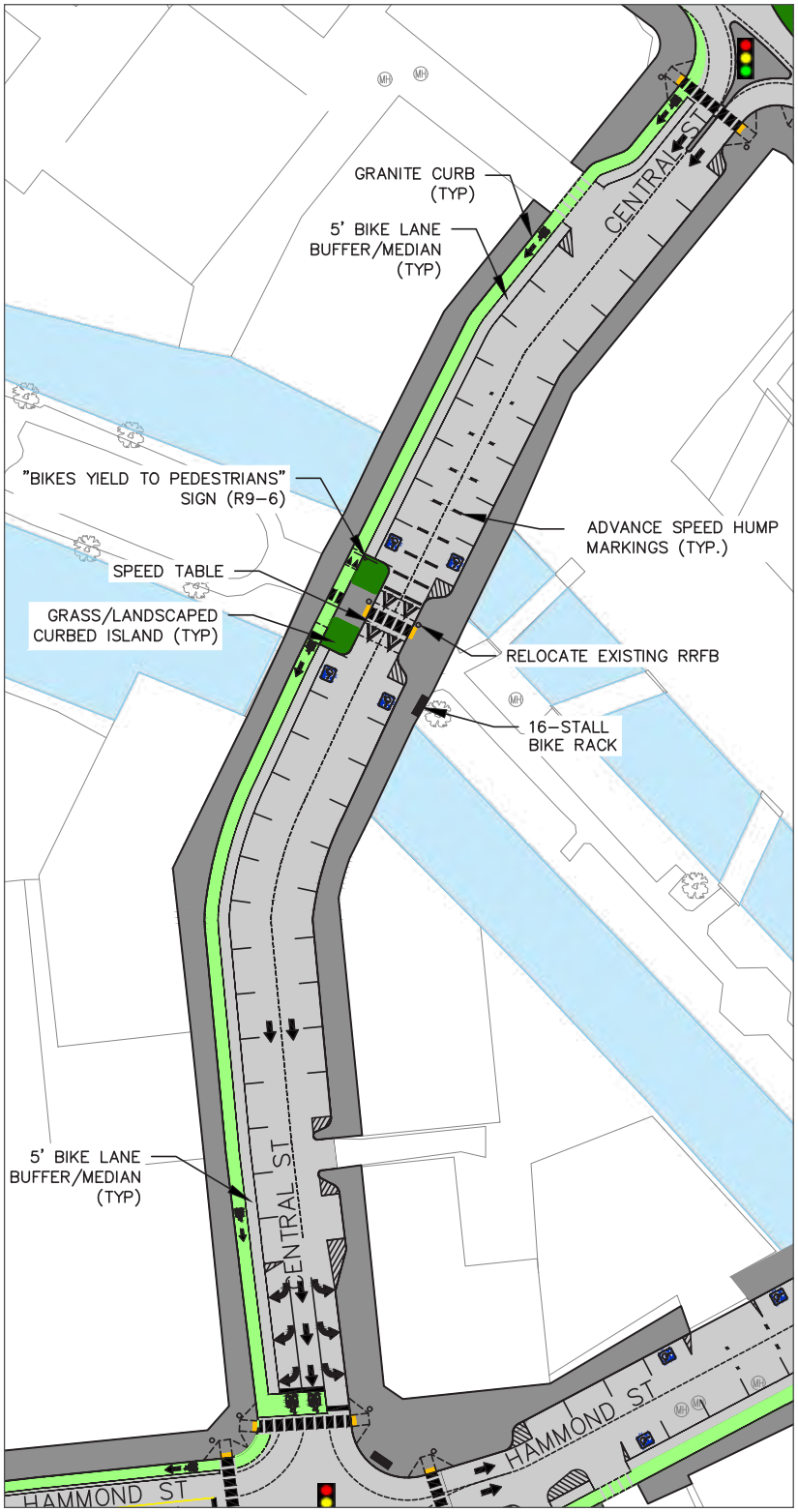
If one way traffic is maintained, it is recommended, for traffic calming purposes and to provide for bicycles, that Central Street be narrowed to provide 11-foot travel lanes, 8.5-foot on-street parallel parking stalls, and a single 6-foot bike lane with a 5-foot buffer.

If roundabouts are implemented at both ends of Central Street and the traffic pattern is changed to two-way traffic, it is recommended that Central Street be narrowed to 11-foot travel lanes, 8-foot on-street parking stalls, and 5-foot bike lanes with 2.5-foot buffers. In areas where sidewalks are impacted, a minimum width of 8-feet is desired.

On-street angled parking on the east side of the roadway is to be replaced with parallel on-street parking to address illegal parking and cars backing into oncoming traffic. Curb bump-outs are recommended to protect on-street parking and to provide shorter, more visible pedestrian crossings.

A speed table is recommended to be placed at the existing pedestrian crossing for Norumbega Park to provide additional traffic calming.

The estimated cost of improvements in this section is $3,900,000. This cost includes the roadway reconstruction, new sidewalks, curb bump outs, bike lanes and bollards, street trees, lighting, furnishings, stormwater infrastructure, and a RRFB. See Appendix E for additional cost estimate details.



Proposed Plan
Central Street

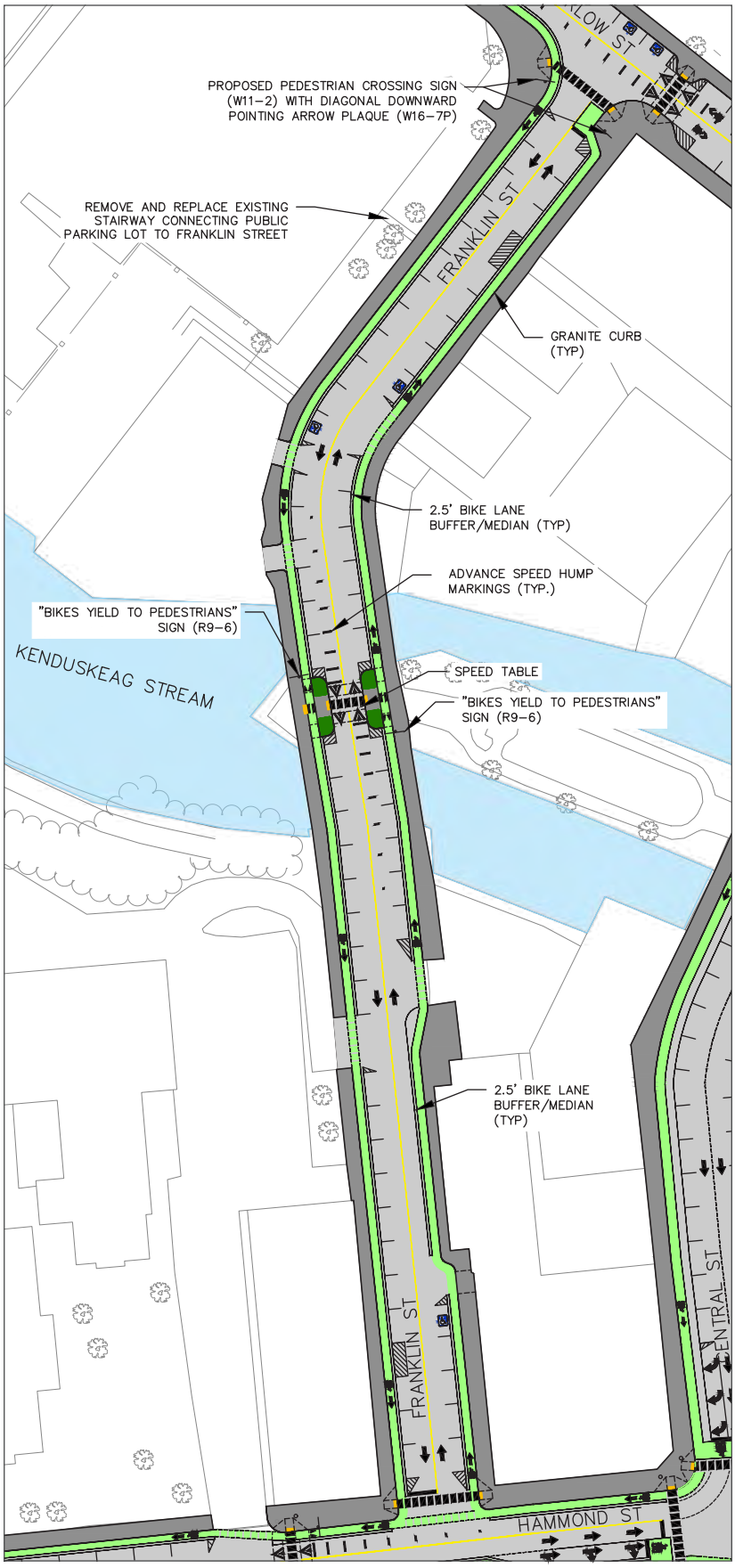
Franklin Street

Franklin Street provides 38 to 49 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes. No major concerns were identified on Franklin Street during site walks, or through public input methods. However, the following recommendations are provided to maintain consistency throughout the entire downtown area.

It is recommended, for traffic calming purposes and to provide for bicycles, that Franklin Street be narrowed to provide 11-foot travel lanes, 8-foot on-street parking stalls, and 5-foot bike lanes with 2.5-foot buffers. In areas where sidewalks are impacted, a minimum width of 8-feet is desired.

A speed table is recommended at the existing pedestrian crossing for Norumbega Park to provide traffic calming and increased pedestrian safety. Curb bump-outs are recommended to shorten the pedestrian crossing distance.

The estimated cost of improvements in this section is $3,850,000. This cost includes the roadway reconstruction, new sidewalks, curb bump outs, bike lanes and bollards, street trees, lighting, furnishings, and stormwater infrastructure. See Appendix E for additional cost estimate details.



Proposed Plan
Franklin Street

Hammond Street (North High Street to State Street)

Hammond Street provides 45 to 49 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes. Concerns identified on Hammond Street include fast vehicular traffic and unsafe pedestrian crossings. It is recommended, for traffic calming purposes and to provide for bicycles, that Hammond Street be narrowed to provide 11-foot travel lanes, 8-foot on-street parking stalls, and 4 to 5-foot bike lanes with 2.5-foot buffers. In areas where sidewalks are impacted, a minimum width of 8-feet is desired.

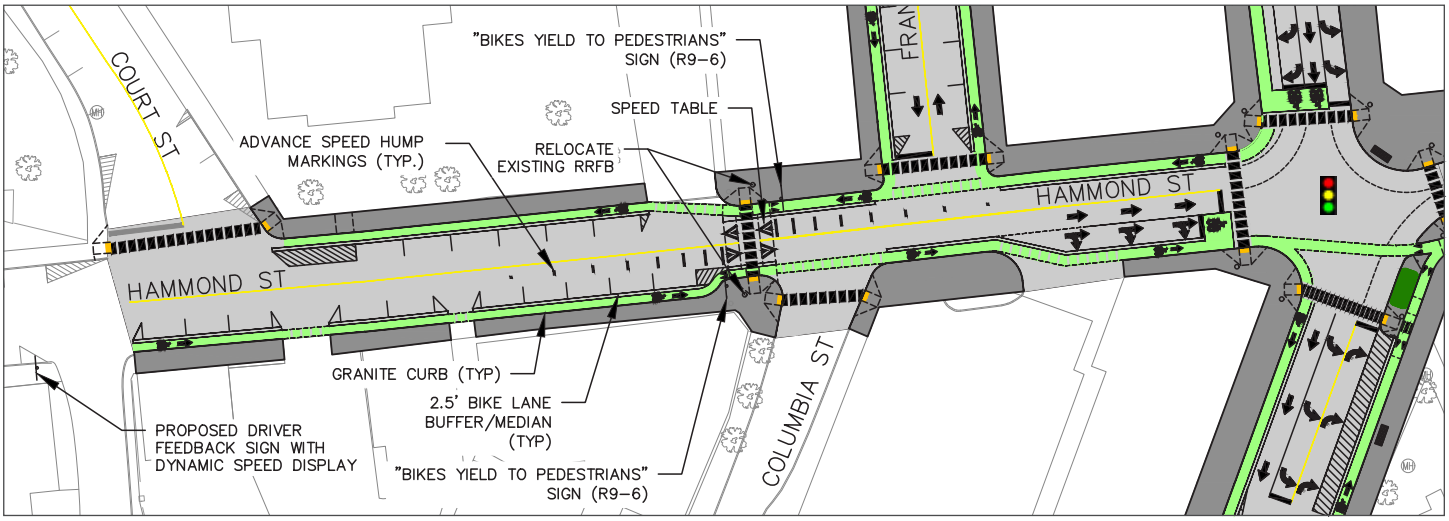
The portion of Hammond Street from the U.S. Postal Service to Central Street has no dedicated on-street parking. It is recommended that curb bump-outs be extended to the edge of the bike lane on the north and south side of the roadway in this section to increase the area of safe pedestrian space.

A speed table is recommended to be installed at the existing pedestrian crossing in front of the U.S. Postal Service to increase safe pedestrian crossing and slow speeds of vehicular traffic.

Another recommended traffic calming measure is a driver feedback sign with dynamic speed display. It is recommended this be located near the intersection with North High Street in order to slow eastbound traffic as it travels down the Hammond Street hill, before approaching the raised pedestrian crossing.

The estimated cost of improvements in this section is $2,200,000. This cost includes the roadway reconstruction, new sidewalks, curb bump outs, bike lanes and bollards, street trees, lighting, furnishings, stormwater infrastructure and a RRFB. See Appendix E for additional cost estimate details.

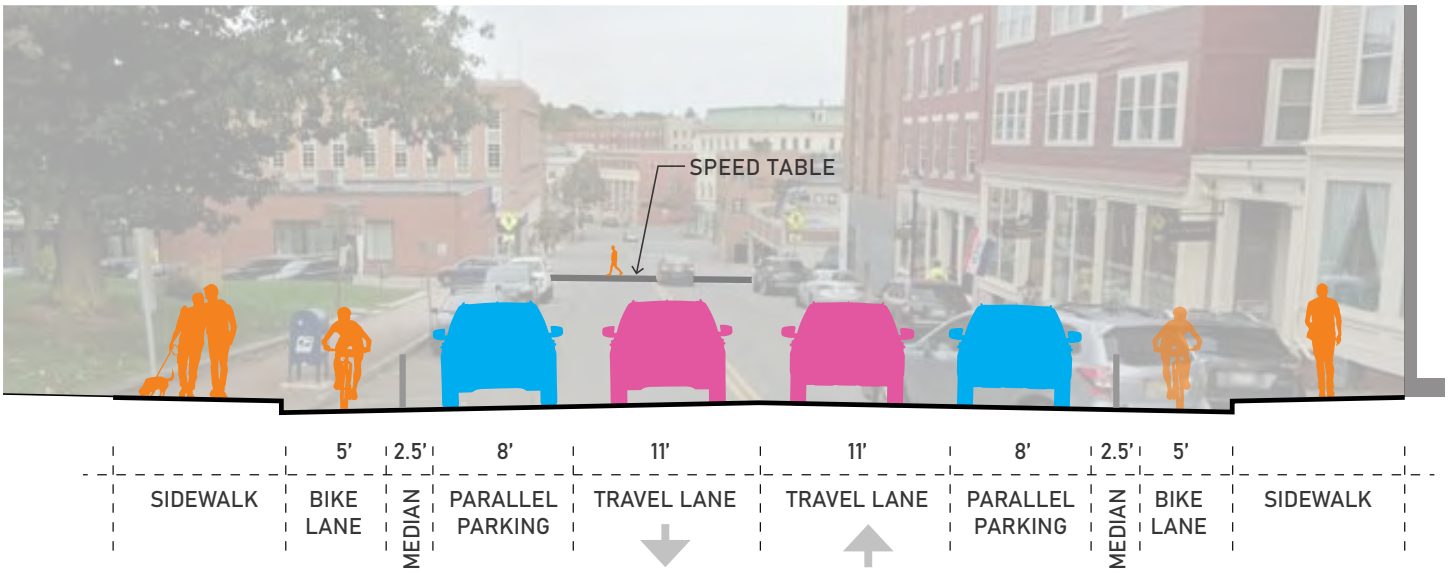
Existing Street Mural
Demonstration project shows approximate location of proposed curb bump-outs



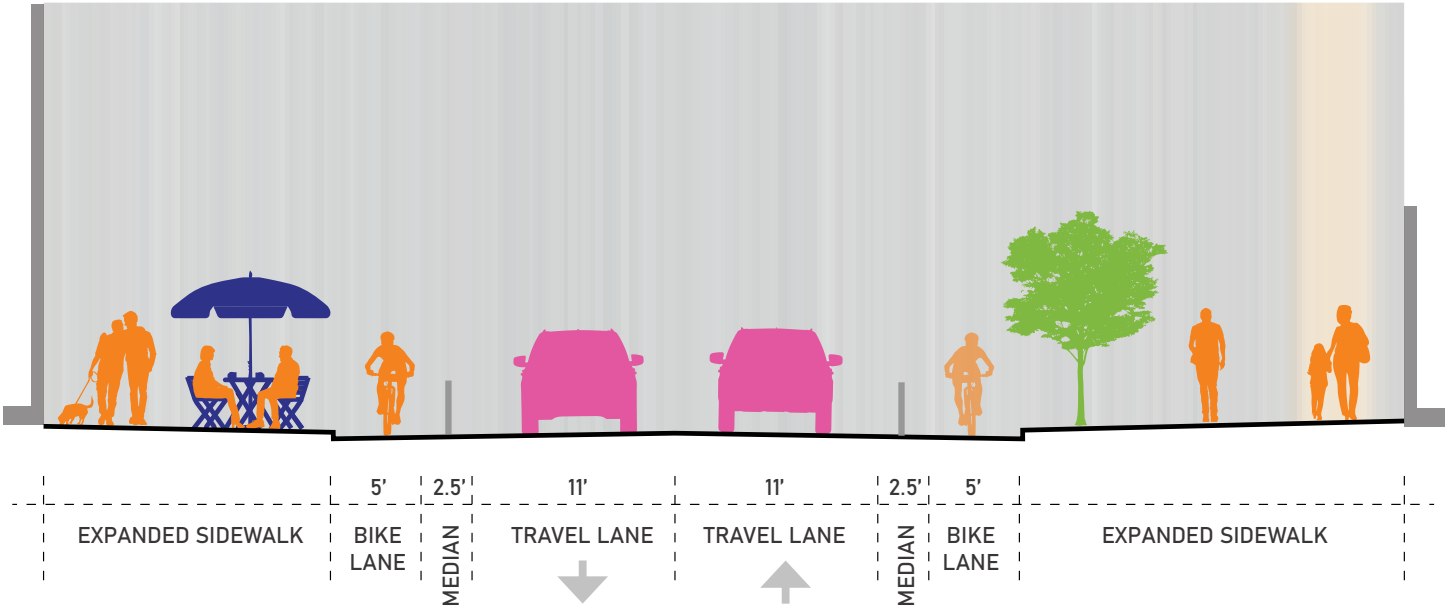
Proposed Plan
Hammond Street (North High Street to State Street)

Hammond Street: Conceptual Sections

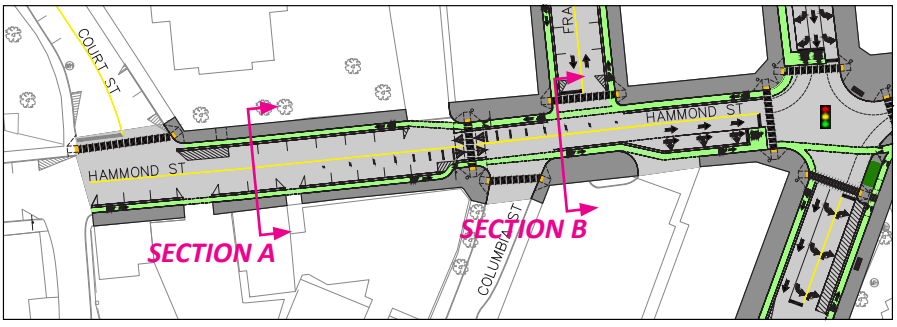
Section A: Hammond Street at Court Street Intersection (facing east)



Section B: Hammond Street at Franklin Street Intersection (facing east)



Reference Plan
Hammond Street



Main Street

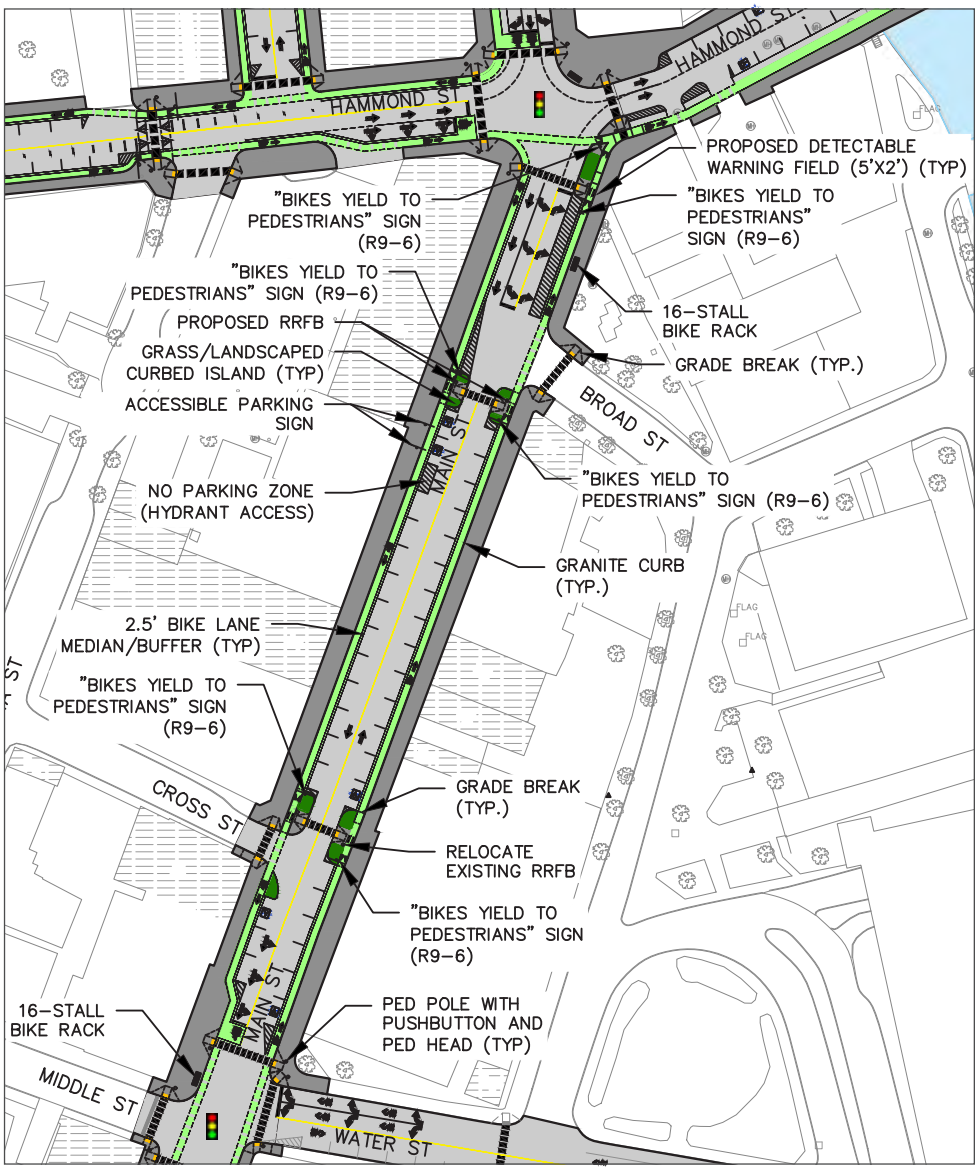
In the following sections, Main Street is described in detail across four separate blocks. The estimated cost of improvements to all sections of Main Street within the study area is $11,400,000. This cost includes the roadway reconstruction, new sidewalks, curb bump outs, bike lanes and bollards, street trees, lighting, furnishings, stormwater infrastructure, median islands and RRFBs. Also included is the replacement of the aging traffic signal system at the intersection of Main Street, Water & Middle Street. See Appendix E for additional cost estimate details.

Main Street (State Street to Water Street)

This section of Main Street provides 42 to 52 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes. Concerns identified by both the Committee and the public along this portion of Main Street include wide travel lanes, improper street parking, improper lane use, and a need for bike accommodations.

It is recommended, for traffic calming purposes and to provide for bicycles, that this portion of Main Street be narrowed to provide 11-foot travel lanes, 8-foot on-street parking stalls, and 5-foot bike lanes with 2.5-foot buffers. In areas where sidewalks are impacted, a minimum width of 8-feet is desired.

Existing on-street angled parking on the east side of the street is recommended to be replaced with parallel parking to address illegal parking and cars backing into oncoming traffic. Curb bump-outs are recommended to protect on-street parking and to provide shorter, more visible pedestrian crossings.

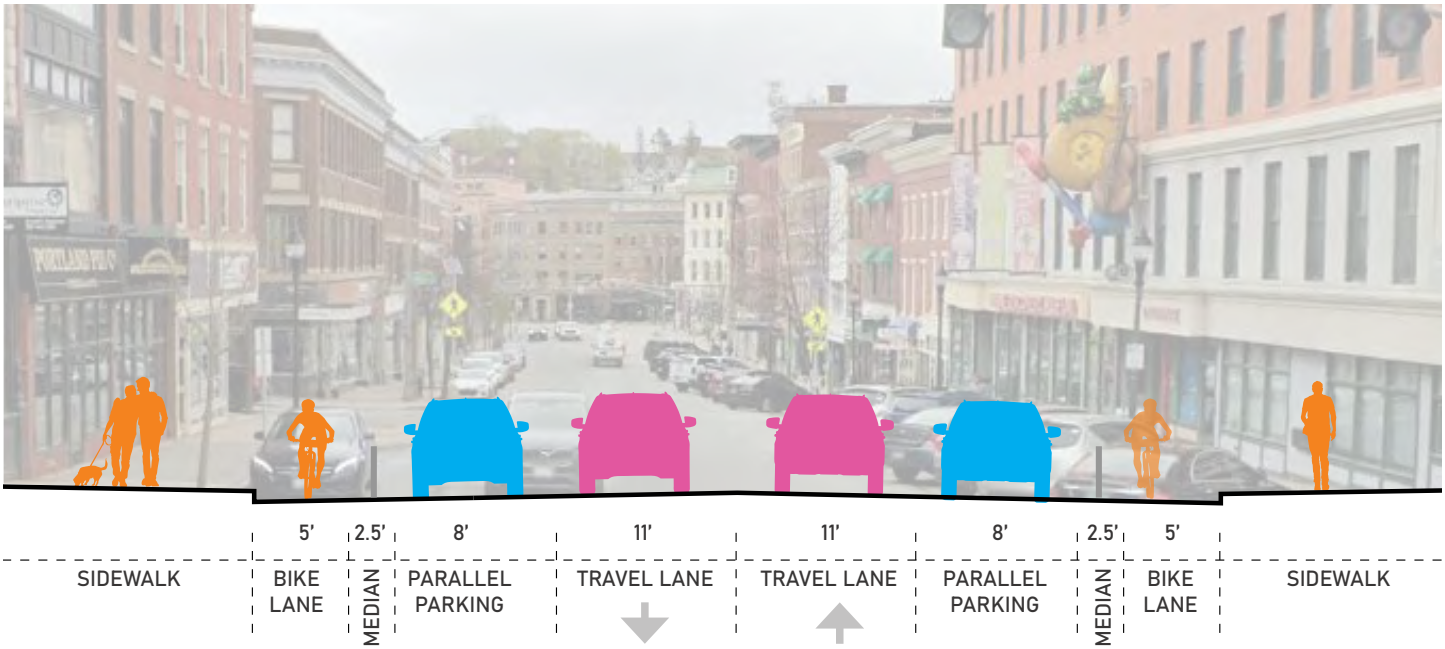


Proposed Plan

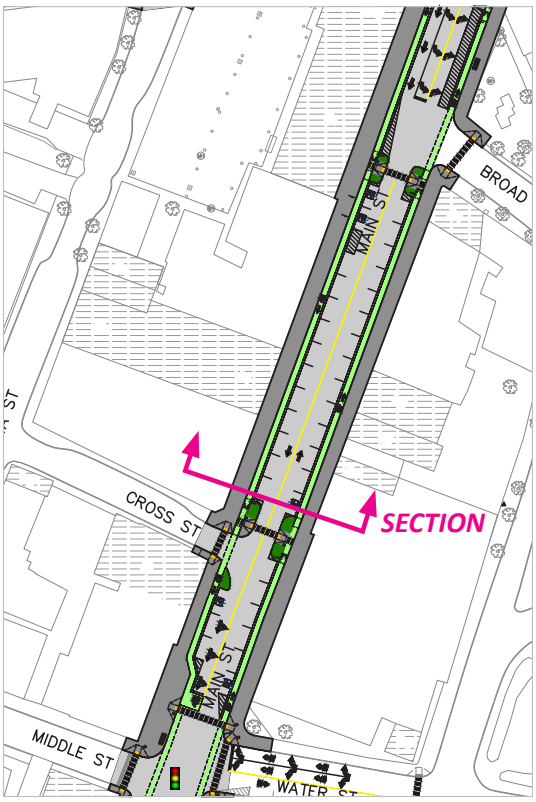
Main Street (State Street to Water Street)

Main Street: Conceptual Section

Section Main Street at Cross Street Intersection (facing north)



Existing Conditions
Main Street



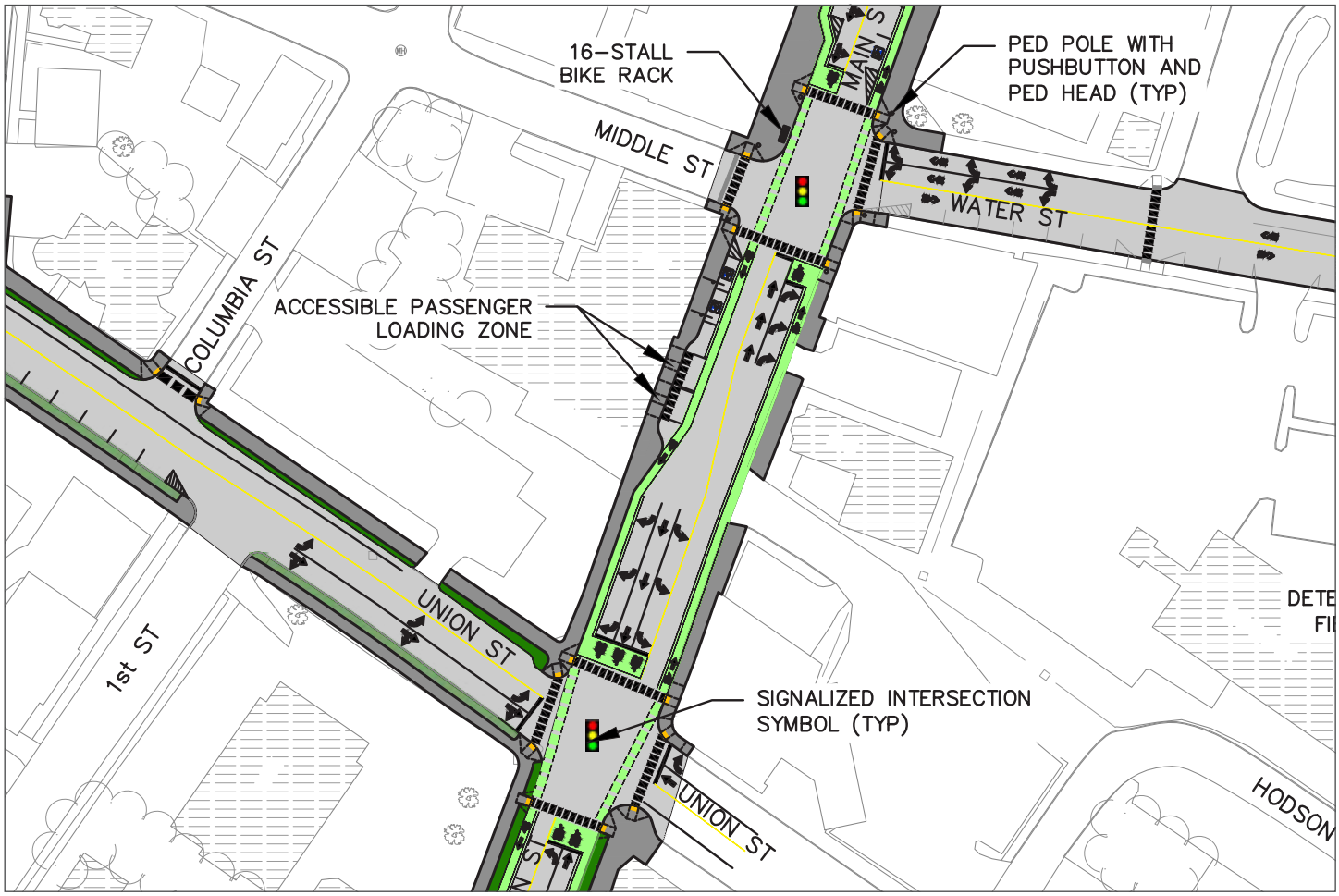
Reference Plan
Main Street

Main Street (Water Street to Union Street)

This section of Main Street provides 49 to 52 feet of existing pavement width, with existing sidewalks and on-street parking on either side of the travel lanes. Concerns identified by both the Committee and the public along this portion of Main Street include wide travel lanes, lack of accessible drop-off points for the Theatre, and a need for bike accommodations.

It is recommended that 11-foot travel lanes, 5-foot bike lanes, and 2.5-foot buffers be installed. Six (6) on-street parking stalls on the east side of Main Street will be removed and replaced by the separated bike lane. In areas where sidewalks are impacted, a minimum width of 8-foot wide sidewalks are desired.

Two accessible passenger loading zones are recommended to be installed in front of the Penobscot Theatre to accommodate accessibility drop-offs. It is also recommended that an additional accessible parking space be striped in an existing on-street parking stall. The bike lane on the West side of the street shall be between the vehicle travel lane and the on-street parking stalls in order to accommodate the accessible passenger loading zones. Bike lanes shall be installed in this configuration on this potion of Main Street only.



Proposed Plan
Main Street (Water Street to Union Street)

Main Street (Union Street to Cedar Street)

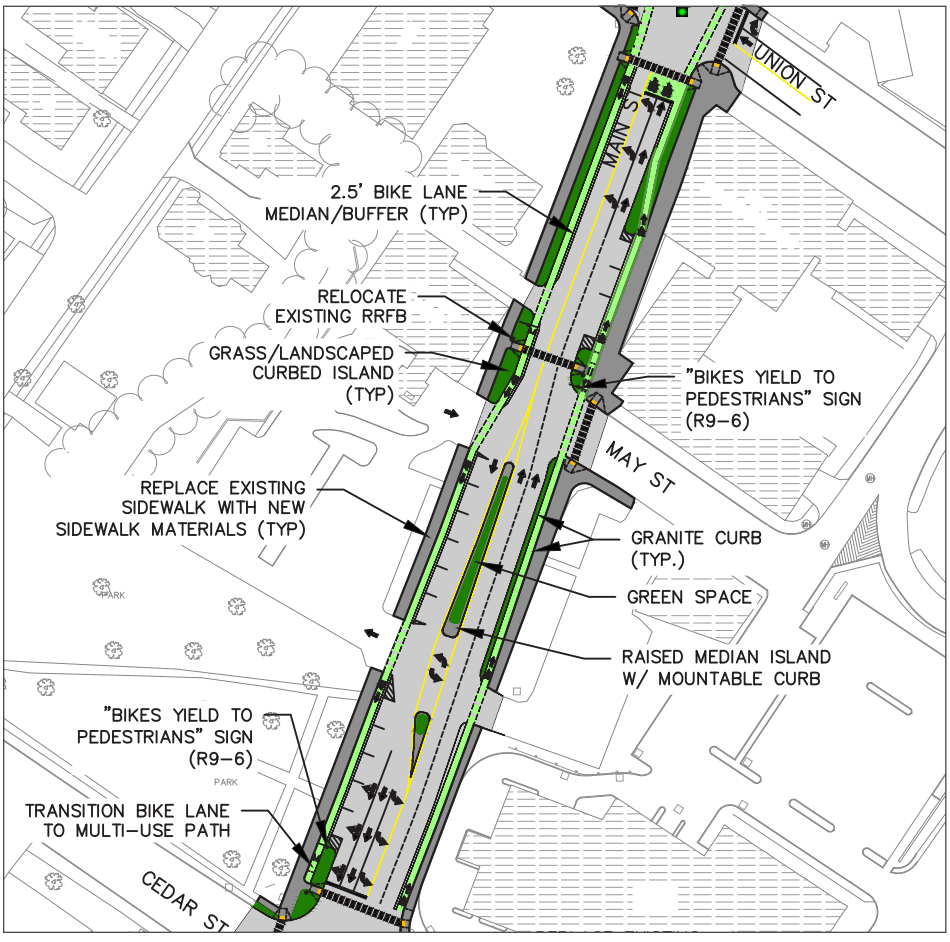
This section of Main Street provides 45 to 65 feet of existing pavement width, with existing sidewalks on either side of the street and on-street parking on the west side of the street. Concerns identified by both the Committee and the public along this portion of Main Street include wide travel lanes, improper lane use, and a need for bike accommodations.

It is recommended, for traffic calming purposes and to provide for bicycles, that this portion of Main Street be narrowed to provide 11-foot travel lanes, 8-foot on-street parking stalls, and 5-foot bike lanes with 2.5-foot buffers. If existing sidewalk width is impacted, a minimum sidewalk width of 8-feet is maintained.

The northerly bike lane should be transitioned into a bike box at the intersection with Union street to allow bicyclists to make safe turns. The southerly bike lane should be transitioned into a multi-use path at the intersection with Cedar Street. Bicycles will be expected to utilize the multi-use path on the West side of Main Street, south of the Cedar Street intersection.

To accommodate a dedicated bike lane and maintain on-street parking, it is recommended that the southbound travel lane be reduced to one lane in this section, transitioning to the existing turn movement lanes at the intersection of Cedar Street.

It is recommended that areas of roadway that are narrowed receive esplanades between proposed curbing and sidewalks. A raised median island is recommended to calm traffic speeds and extend the aesthetic from the south.



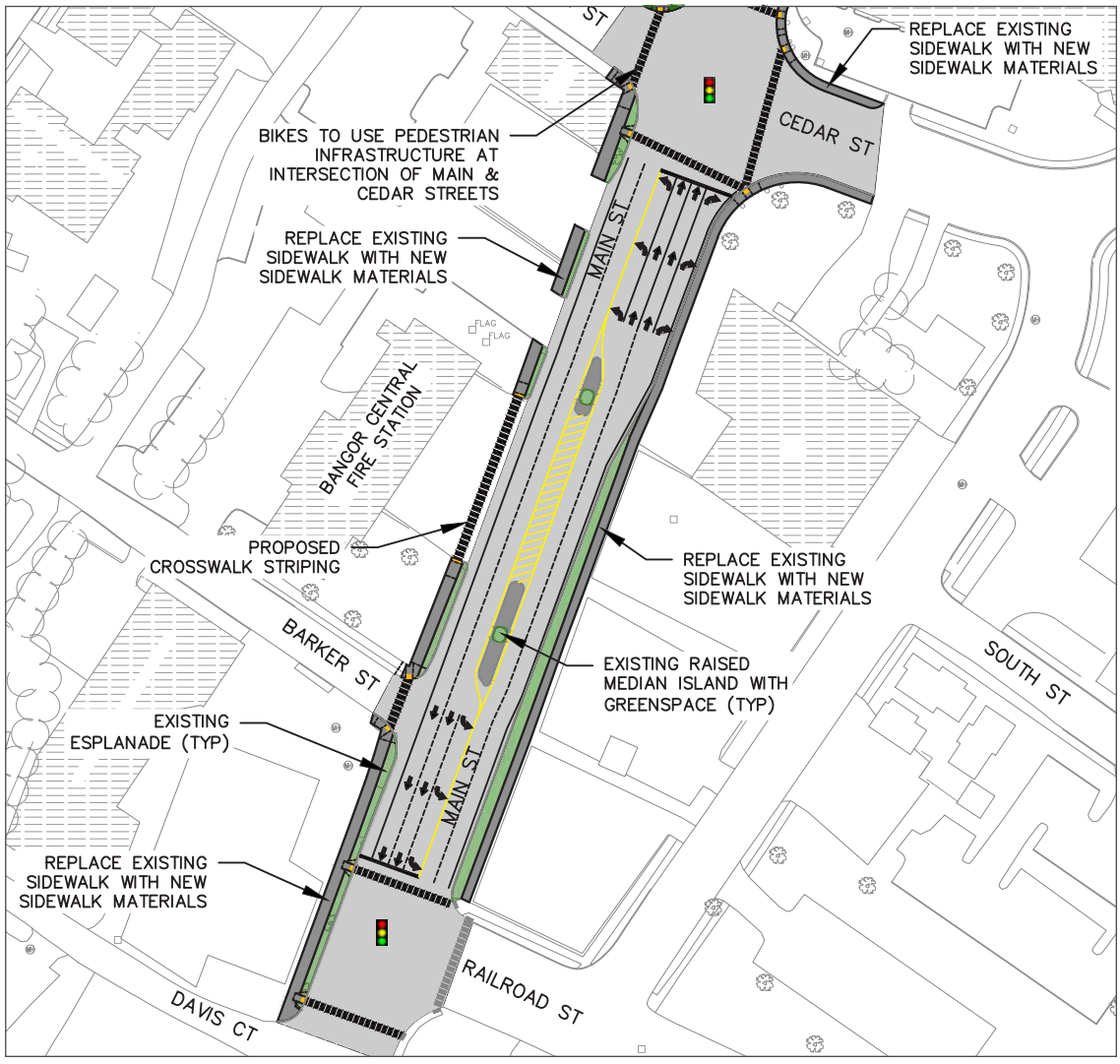
Proposed Plan
Main Street (Union Street to Cedar Street)

Main Street (Cedar Street to Railroad Street)

This section of Main Street provides 68 to 77 feet of existing pavement width, with existing sidewalks on either side of the street. Concerns identified the by Committee along this portion of Main Street include concerns for pedestrians crossing in front of the Bangor Central Fire Station where no sidewalk is provided.

It is not advisable to install a sidewalk section that could impede the path of emergency response vehicles. Therefore, it is recommended crosswalk that striping be used to provide a visual pedestrian path between the existing sidewalk tip-downs.

Bike lanes were considered for this portion of Main Street. However, in order to install bike lanes and maintain the existing travel lanes and median islands, this portion of Main Street would need to be reconstructed. Considering the relatively new age of the road and the cost of reconstruction, it was determined that the benefit of separated bike lanes did not outweigh the construction costs to install them. It is recommended that the southerly bike lane be transitioned onto the multi-use path before the intersection with Cedar Street. Bicyclists will be expected to utilize pedestrian infrastructure to maneuver the intersection of Main and Cedar Street, and the multi-use path that begins at the intersection and extends south, on the west side of Main Street. The width of the multi-use path is to be a minimum of 8-feet wide, with 10-feet preferred.



Proposed Plan
Main Street (Cedar Street to Railroad Street)

Union Street (2nd Street to Main Street)

The portion of Union Street from 2nd Street to Main Street provides 38 to 43 feet of existing pavement width, with an existing sidewalk, esplanade, and on-street parallel parking on the southern side of the travel lanes, and an existing sidewalk on the northern side of the travel lanes.

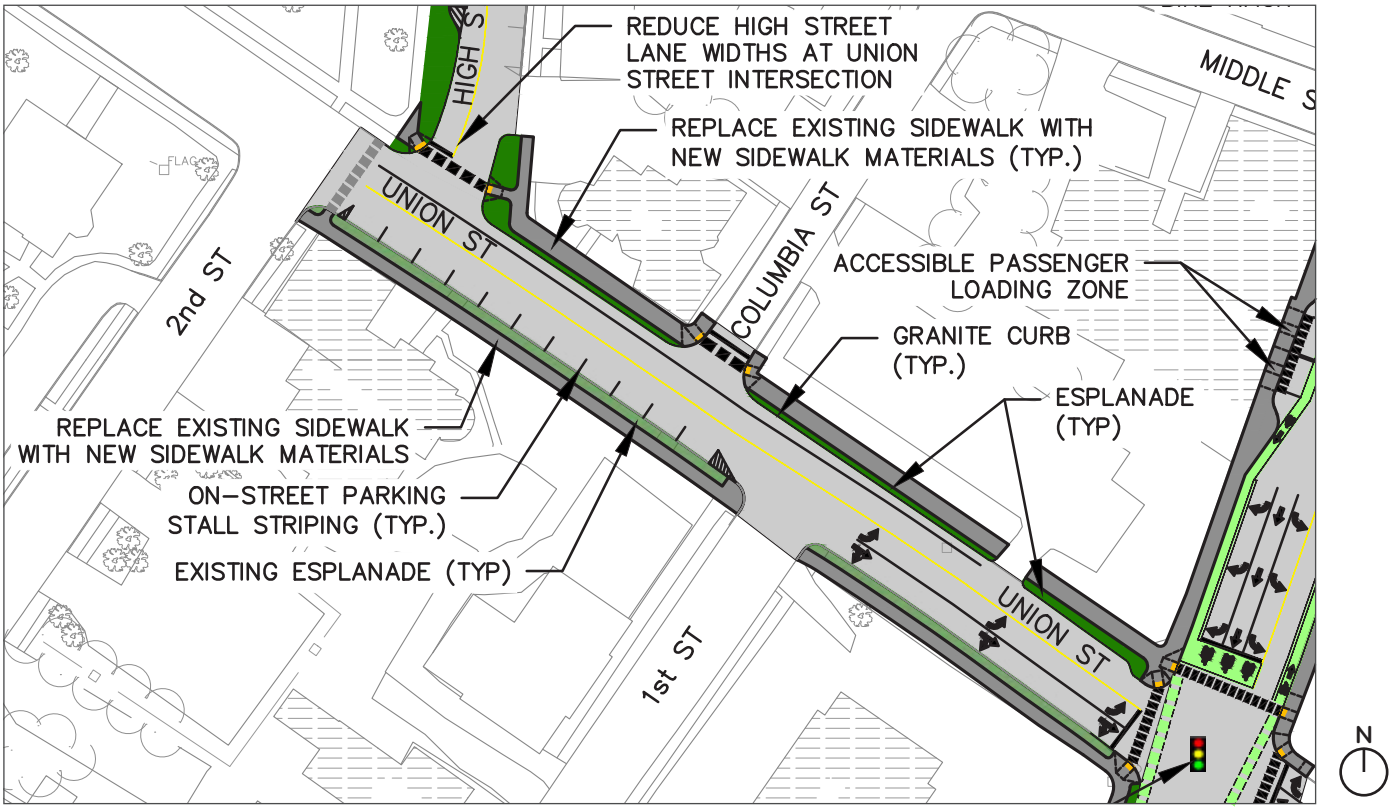
Potential improvements noted during the initial site walk on this section of Union Street include the potential for a continuous esplanade, and striping of on-street parallel parking stalls. Public feedback for this section of Union Street included narrowing the intersection of High Street and Union Street.

It is recommended that on-street parallel parking stalls be painted between 1st Street and 2nd Street, on the southern side of Union Street, to clarify to drivers that timed on-street parking is permitted.

Esplanades are recommended to be installed on the northeast side of the roadway from High Street to Main Street, providing increased pedestrian safety and a continuous sidewalk theme along this section of Union Street.

It is also recommended that the approach from High Street onto Union Street be narrowed to 12-foot travel lanes with the use of curb bump-outs in areas where on-street parking stalls do not exist. This will address fast moving traffic approaching Union Street from High Street, as well as reduce the length and increase visibility of the existing pedestrian crossing.

The estimated cost of improvements in this section is $2,500,000. This cost includes the roadway reconstruction, new sidewalks, curb bump outs, esplanade, street trees, lighting, furnishings, and stormwater infrastructure. See Appendix E for additional cost estimate details.

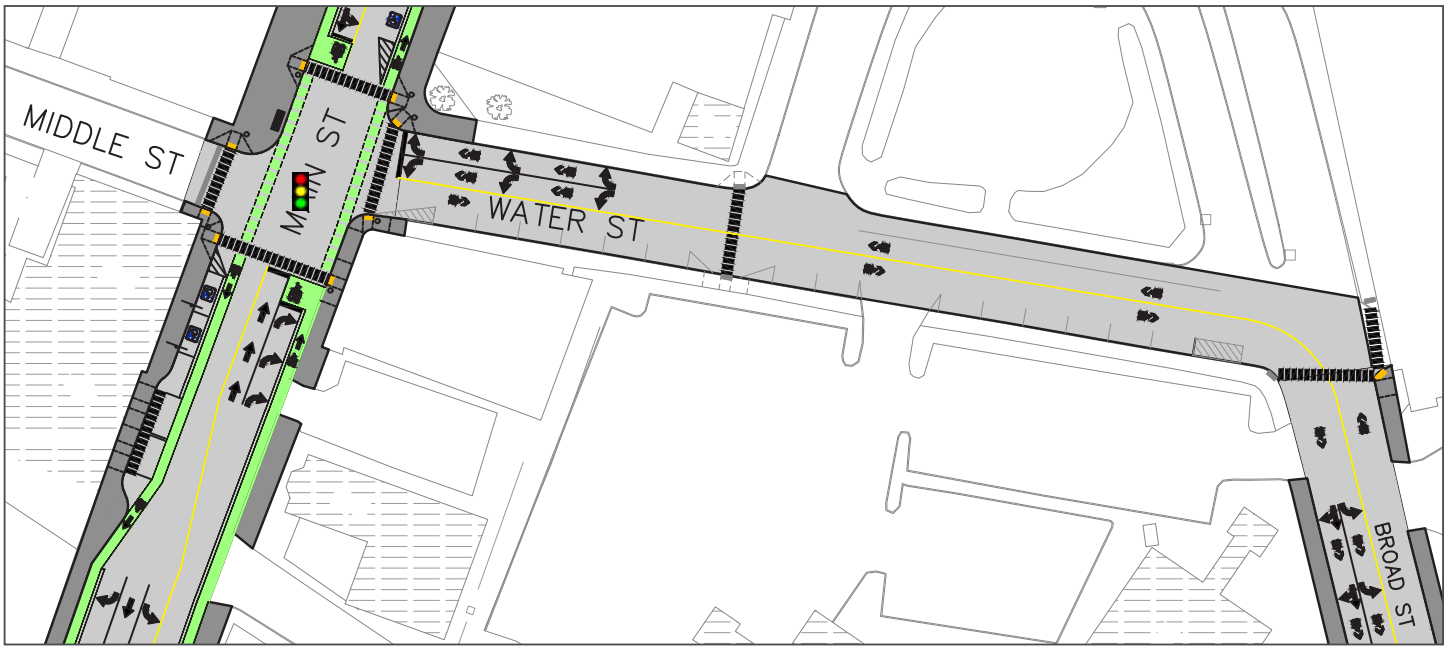


Proposed Plan
Union Street (2nd Street to Main Street)

Water Street

The only recommended roadway improvements on Water Street are the addition of shared lanes. It is recommended that pedestrian lighting be enhanced on Water Street to make a for safer night-time conditions for pedestrians accessing the parking garage from the theater on Main Street.

The estimated cost of improvements in this section is $10,000. This cost includes the painting of sharrows in the travelway. Additional Pedestrian lighting between the parking garage and the intersection at Main Street is estimated to be $160,000. See Appendix E for additional cost estimate details.



Proposed Plan
Water Street

Park Street

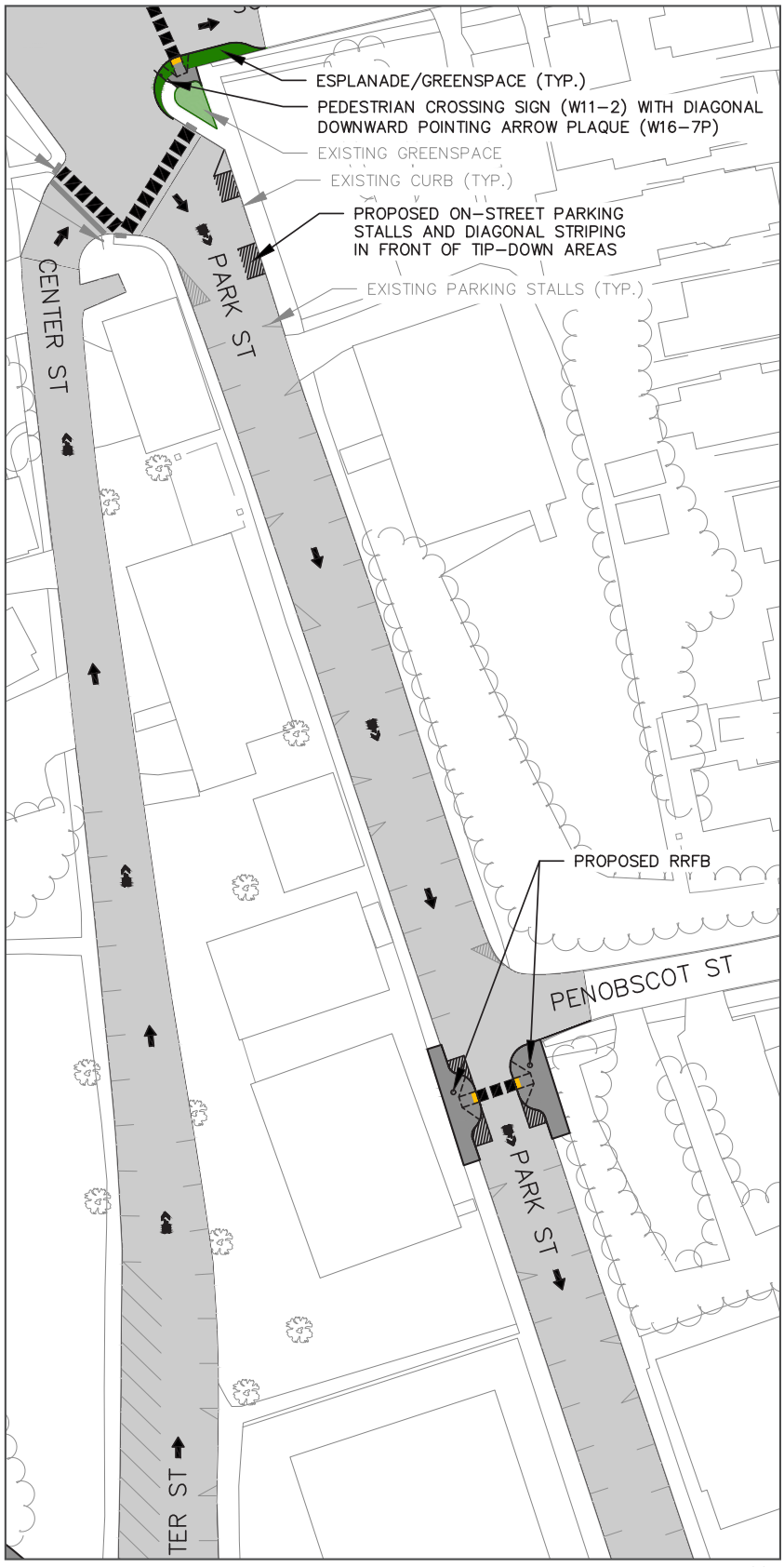
An observation made during the initial site walk along Park Street is the considerable foot traffic from John Bapst Memorial High School into downtown Bangor. To improve the safety of pedestrians crossing Park Street, it is recommended that a crosswalk with pedestrian crossing signage be installed at the corner of Park and Penobscot Streets. It is recommended that curb bump-outs are installed to minimize the crossing length and improve pedestrian visibility to oncoming traffic.

The estimated cost of improvements in this section is $225,000. This cost includes the sidewalk replacement, proposed crosswalk, and Park Street / Center Street intersection improvements. See Appendix E for additional cost estimate details.

Center Street

With the exception of the recommended intersection improvements at the north and south end of Center Street, the only recommended streetscape improvement is the introduction of a shared lane.

The estimated cost of improvements in this section is $10,000. This cost includes the painting of sharrows in the travelway. See Appendix E for additional cost estimate details.



Proposed Plan
Park Street and Center Street

5. SHARED PLAZA: BROAD STREET / MERCHANTS PLAZA

The section of Broad Street / Merchants Plaza between the Main Street intersection (south of West Market Square) and the Bangor Area Transit Center is a natural pedestrian connection with an opportunity for enhancement. This road has a low traffic volume (110 vehicles during the peak hour) and is primarily used for deliveries to businesses and motorists circling as they search for on-street parking. The roadway is bordered by three public plaza spaces: West Market Square to the north, the Pickering Square to the east, and an unnamed sidewalk plaza to the west. For those arriving in downtown Bangor by way of the Pickering Square Parking Garage or the Transit Center, this area is the first place they come to as pedestrians.

There is potential to expand upon this adjacent open space to make this roadway a space that prioritizes pedestrian movement over the vehicular movement, flipping the traditional roadway hierarchy. The prioritization of pedestrian use, movement, and wayfinding on this street would create a unique space in the downtown that would help direct those arriving by bus or emerging from the parking garage to easily find their way towards events and business downtown.

Existing Condition Images

***Left**: View facing Broad Street from intersection with Main Street. West Market Square is left side of image.*

***Bottom Left**: View facing north on Merchants Plaza. Unnamed Sidewalk Plaza on left side of image.*

***Bottom Right:** View facing north on Merchants Plaza. Transit Center and Pickering Square parking Garage are on left side of image. Pickering Square is under construction.*

Shared Plaza Recommendation

The recommendation for Broad Street / Merchants Plaza is to eliminate the traditional roadway, that separates vehicles from pedestrians with curbing and materials, in favor of a shared plaza that would be occupied by both pedestrians and vehicles. This type of shared roadway is more common in European settings and is also known as a 'woonerf' in Dutch cities. The defining characteristic of a shared plaza is typically curbless (all at a single grade), allowing pedestrians to navigate freely across an accessible surface. Variations in surface materials, as well as the use of bollards and plantings are used to define the space and direct movement.

In the case of this site, it should be a goal to allow vehicles to still move through and continue to offer parking (especially for business deliveries). The shared plaza should also easily transform into a pedestrian-only space for festivals and seasonal events, and the space may be easily activated with programming and vendors. The design of the roadway and adjacent plazas should prioritize wayfinding for pedestrians to allow for safe movement between the transit area towards other parts of downtown.

This is a high-level concept that requires further exploration and design development. The preliminary diagrams and precedent images presented in this study may serve as a guide for that work. The estimated cost of these improvements is $3,000,000. See Appendix E for additional cost estimate details.

Concept Images and Diagram

Concept Plan Diagram

Colored area represents proposed shared plaza (curbless area with surface of drivable pavers). The diagram shows bollards and trees to represent conceptual separation between vehicular circulation and pedestrian-only plaza spaces.

Precedent Images

The two images on the far left demonstrate curbless shared plaza spaces occupied by both pedestrians and vehicles.

Note that traditional parking and roadway configuration can be reflected through the use of surface materials, planting, lighting, and bollards.

6. WATERFRONT PARK: KENDUSKEAG PLAZA WEST

Recommended improvements to Kenduskeag Plaza West serve the larger goal to enhance the waterfront experience and increase both pedestrian connectivity and public open space through the downtown.

The Kenduskeag Plaza West roadway along the western shoreline of the Kenduskeag Stream runs from Washington Street north to the bridge across the river to York Street (stopping just south of State Street). This road provides access to the back of the Pickering Square Parking Garage (primary access to this garage faces Broad Street); access to a private parking lot, access to Bangor Alley, with ties back to Broad Street; and access across the river to York Street. There are very low traffic volumes on this roadway, as this is not a common through-street for vehicles. There is a two-story pedestrian bridge accessible from a central point in the roadway, which provides access to Hancock Street and Exchange Street on the east side of the Kenduskeag Stream. While the waterfront runs adjacent to the roadway and there is a pedestrian river crossing from this road, the design of the roadway does not support pedestrian activity or turn focus to the waterfront. The experience for both motorists and pedestrians on Kenduskeag Plaza West is like that of the backyard to the downtown, with development and activity turning away from this roadway and the waterfront.

In existing conditions, the widest point of Kenduskeag Plaza West spans approximately 90 feet (from the Pickering Square Parking Garage curb to the edge of the Kenduskeag Stream). Approximately 66 feet of this area accommodates wide travel lanes and perpendicular parking. There is an opportunity to redesign this area to better support the pedestrian experience (see section on next page).

Existing Condition Images

Top: *View facing south from elevated pedestrian bridge shows width of Kenduskeag Plaza West Roadway.*

Center*: View facing south on Kenduskeag Plaza West. Existing street trees and a narrow sidewalk are minimal in comparison to the roadway surface.*

Bottom*: View facing south from State Street toward the York Street Bridge over the Kenduskeag. The York Street Bridge could serve as an extension of the waterfront park.*

Waterfront Park Recommendation

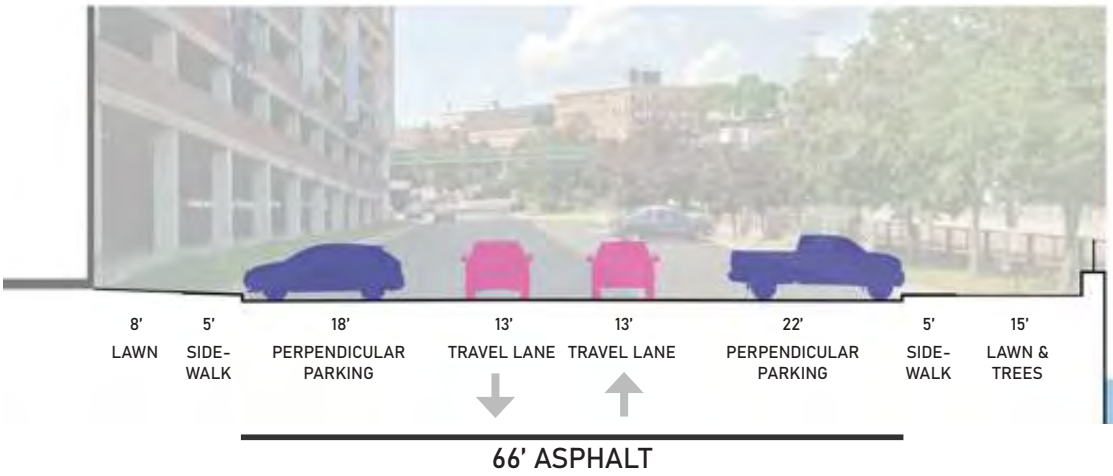
The proposed recommendation is to narrow the Kenduskeag Plaza West roadway and develop a linear waterfront park. This parkway would close the gap between the Bangor Waterfront Trails to the south, and Norumbega Parkway and Kenduskeag Stream Trails to the north.

The linear park would prioritize pedestrians and cyclists, open up views of the Kenduskeag Stream, and create opportunities for daily and event-based programming. In the design development of this prosed park, the design team should explore opportunities for shoreline naturalization, flooding mitigation, and potential water access. On the west side of the linear park, the existing roadway would continue to support two-way traffic and could support a single row of parallel parking in select locations.

In addition to the waterfront on Kenduskeag Plaza West, there is also an opportunity limit use of the York Street Bridge (shown in images on the previous page) to pedestrian access only. Traffic is not dependent on this bridge to access Kenduskeag Plaza West. If limited to pedestrians, this bridge could be incorporated into the waterfront park space.

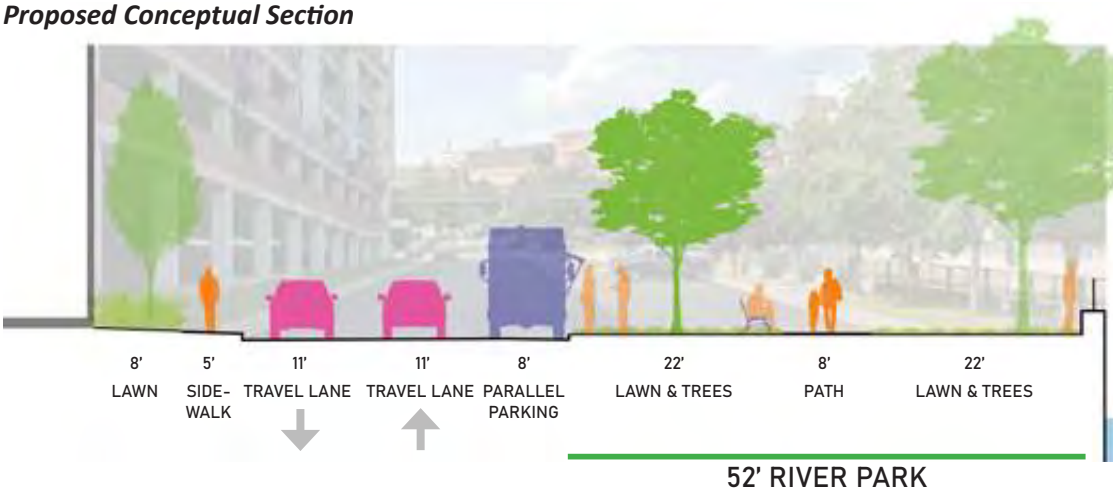
The estimated cost of these improvements is $3,000,000. See Appendix E for additional cost estimate details.

Existing Condition Section



Existing Plan

Proposed Conceptual Section



Conceptual Plan

Conceptual Plan

Precedent Images

Riverwalk in Flower Mound, Texas

Canal Walk in Indianapolis, Indiana

Riverwalk in Chicago, Illinois

7. MATERIALS + COSTS

The selection of materials and products is an opportunity to establish a consistent look and feel of downtown Bangor. The selection of products and materials used in the study area will contribute to the identity of downtown. The City should strive to make thoughtful choices and use consistent materials in future downtown improvements. This is not a site-based recommendation, but rather a reference to considerations and a potential palette of materials to draw upon in future improvements.

The concept design and cost estimate assume all pedestrian light fixtures and furnishings are replaced to establish a consistent approach to lighting in the downtown area.

Plantings

Street Trees

Street trees should be integrated into the streetscape during improvements. Particularly in areas with wider sidewalks, where tree canopies have room to expand over the sidewalk without the physical restriction of building facades. When reconstructing the sidewalks to support street trees, special attention should be paid to the type of tree, subsurface conditions, including soil quality and makeup, soil volume and room for roots to expand, and access to water. Access to water may include using street tree pits as part of the stormwater management system. The use of tree grates should be used with street tree planting, as they protect the soil and root systems from compaction and erosion.

Planters

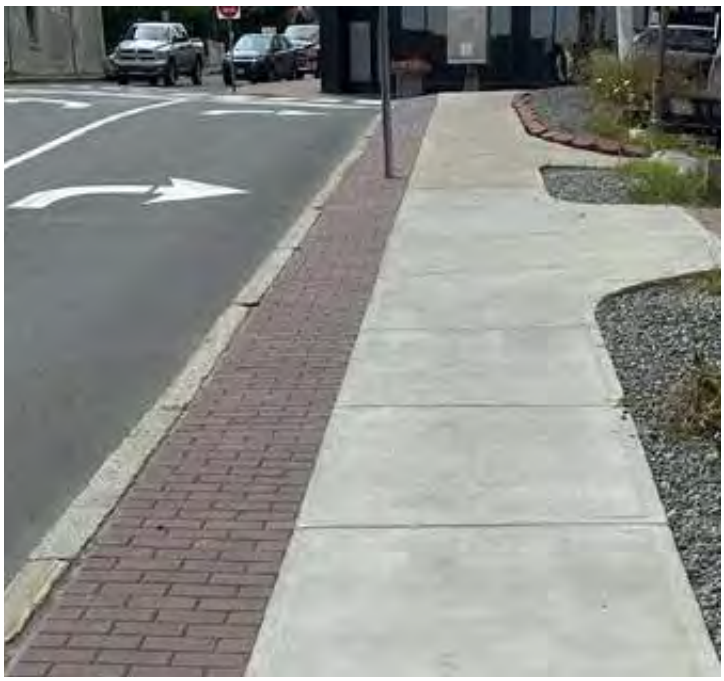
Planters can be used to support the vegetation when in-ground planting isn't feasible, such as on sidewalks, plazas, or heavily paved areas. They can also be used to protect or separate pedestrian areas of bike lanes from vehicular area. Planters offer flexibility in seasonal plantings and can be sponsored by local community organizations or businesses.

Sidewalks and Pavers

Sidewalks throughout the downtown region are currently made up of differing materials and are in various conditions. To create a unified aesthetic throughout downtown, it is recommended that a singular pallet of materials be used to replace any sidewalks that have not been recently updated by the City, and for all proposed improvements.

The recommended materials used for sidewalk repairs and reconstruction should follow the approach used in recent sidewalk improvements to maintain consistency. This pallet of materials includes concrete sidewalks bordered by a red brick esplanade that meets granite curbing. Traditional concrete sidewalks are a cost-effective approach to sidewalk construction and provide an accessible surface for pedestrian travel. The use of red brick aligns with historic aesthetic of downtown Bangor and allows for potential variations in the sidewalk design. The red brick can be used to accommodate sidewalk bump outs, the integration of tree grates and planting areas, grade changes required between the concrete and curb elevation, and support site (such as bike racks and benches).

Park Street Sidewalk



Water Street Sidewalk

Lighting

Lighting fixtures provide an opportunity to reinforce the historic character of downtown Bangor. While fixtures may be selected for their historic character, they can be outfitted with high efficiency LED lighting. The use of cut-off fixtures (to prevent glare) and electrical outlets should also be considered in lighting fixture selection.

In the preliminary cost estimates provided in this study, a typical spacing of 40-feet between fixtures was used. An allowance of $10,000 per fixture was used to include the fixture, wiring, and labor. This number is highly variable based on the existing conditions and should be verified with the City Engineer.

Proposed New LED Lighting

Holophane WFCL3 Lantern (Installed in 2025 Pickering Square Improvement Project)

Existing Lighting in Study Area

Furnishings

Seating

Seating is an essential furnishing to include in the streetscape design, as they provide respite and an opportunity to meet or engage in social interaction. The siting of benches should be design in coordination with street tree plantings and lighting to provide both safety and protection. Siting of benches should also consider solar orientation, with the understanding that seating should provide sunny place to sit during most seasons.

Bollards

Bollards are designed and sited to prevent vehicular access in a pedestrian area. Bollards may serve a purpose in protecting the pedestrian areas or protected bike lanes. Bollards will help direct traffic flow and define access patterns in the proposed shared plaza on Broad Street / Merchants Plaza.

Bike Racks

Bike racks should be positioned on the sidewalk, where there is enough room to safely maneuver a bicycle. The exact location of potential bike racks has not been identified in this study but should be considered in the design development work to follow.

Waste Disposal

A comprehensive system for waste disposal should include trash and recycling. The inclusion of dog waste disposal may also be beneficial at certain points near parks and plazas. Waste disposal points are typically located near benches or at intersections where pedestrians might pause to discard their trash.

Public Art

Public art is already present in downtown Bangor and should continue to play a role in contributing to the character and identity of the downtown. The use of public art has the capacity to turn urban landscapes into cultural spaces that support both individual reflection and community connection. As the downtown area continues to evolve, public art should remain an essential element in creating vibrant, inclusive, and welcoming spaces.

Potential sites for public art integration within the study area include:

- Proposed shared plaza on Broad Street/Merchants Plaza
- Kenduskeag West Plaza waterfront park
- Future sidewalk improvements
- Potential roundabouts (if selected as path forward)

In an effort to expand public art, the City should continue collaboration with the local non-profit Beautiful Bangor. This organization was founded in 2022 by artists and citizens of Bangor who seek to enhance the community through public art, trees and gardens, and other beautification efforts. The images on this page are examples of local public art projects they been involved with.

Images Source: www.bangorbeautiful.org

Cost Summary

The cost estimates are provided Appendix E and referenced in relation to recommended street and intersection improvements throughout this chapter. The estimates provided are preliminary in nature and intended to assist in the planning and decision making process.

A compilation of the costs to understand the investment required to undertake the full project is necessary to continue the momentum started with this study. The preliminary estimate of the cost required to complete the work as recommended in it's entirety is $42,415,000. This cost assumes the implementation of maintaining one-way traffic with signalized intersections in the Circular Core as well as the signalized intersection design at the Washington/Broad/Independence Street intersection.

Images Source: Jessica Kimball, Sewall Team


CITY OF BANGOR
INCORPORATED, FEB. 12, 1834

Downtown Bangor Transportation and Streetscape Improvement Study

APPENDICES

- APPENDIX A: TRAFFIC AND SAFETY REVIEW
- APPENDIX B: TRUCK TURN RADIUS AND BIKE LANE ALTERNATIVE DESIGN STUDY
- APPENDIX C: PUBLIC ENGAGEMENT SURVEY RESULTS
- APPENDIX D: MAINEDOT CRASH RECORDS
- APPENDIX E: COST ESTIMATES

A Maine DOT Planning Partnership Initiative (PPI) Study

Bangor, Maine
January 2025

MaineDOT BACTS

APPENDIX A

TRAFFIC AND SAFETY ANALYSES

ACCIDENT REVIEW

The Maine Department of Transportation (MaineDOT) uses two criteria to determine high crash locations (HCLs). The first is the critical rate factor (CRF), which is a statistical measure of the accident rate. A CRF greater than 1.00 indicates a location which has a higher than expected accident rate. The expected rate is calculated as a statewide average of similar facilities. The second criteria, which must also be met, is based upon the number of accidents that occur at a particular location. Eight or more accidents must also occur over the three-year study period for the location to be considered a high crash location. Crash data for the study area was obtained from MaineDOT for the most recent three-year period, 2021 to 2023. The CRF and number of accidents are summarized by location in the following tables:

Intersection Location Description	**# of Crashes**	**CRF**
Intersection of Park, Center, and Somerset Street	2	1.68
Intersection of Center, Harlow, and Central Street	2	0.10
Intersection of Harlow and Franklin Street	3	0.87
Intersection of Harlow, State, and Exchange Street	14	0.81
Intersection of Exchange and York Street	3	1.38
Intersection of Main, Hammond, and Central Street	9	0.50
Intersection of Hammond and Franklin Street	1	0.28
Intersection of Hammond and Court Street	1	0.26
Intersection of Hammond and State Street	1	0.29
Intersection of Main and Broad Street	3	0.24
Intersection of Main and Cross Street	1	0.26
Intersection of Main, Water, and Middle Street	3	0.19
Intersection of Main and Union Street	**37**	**1.67**
Intersection of Main and Cedar Street	9	0.37
Intersection of Main and Railroad Street	5	0.27
Intersection of Union and High Street	5	1.30
Intersection of Union and First Street	5	1.17
Intersection of Broad and Water Street	1	0.83
Intersection of Broad, Washington, and Independent Street	5	0.37
Intersection of Washington Street and Kenduskeag Plaza West	2	0.59

Street Segment Location Description	**# of Crashes**	**CRF**
Center Street – Spring Street to Somerset Street	1	1.76
Center Street – Harlow to Prospect Street	1	1.81
Park Street – Somerset Street to Penobscot Street	1	0.61
Harlow Street – Public Parking Lot to Franklin Street	1	0.46
Harlow Street – Franklin to Central Street	**8**	**3.48**
Harlow Street – Central Street to Park Street	5	1.12
Harlow Street – Park Street to State Street	3	1.36
Central Street - Harlow Street to Hammond Street	**10**	**2.00**
Franklin Street – Harlow Street to Hammond Street	6	1.03
Hammond Street – Columbia Street to Court Street	3	1.14
Hammond Street – Central Street to Kenduskeag Stream	4	1.34
State Street – Kenduskeag Stream to Harlow/Exchange Street	**14**	**4.71**
Exchange Street – State Street to York Street	1	0.69
Main Street – Broad Street to Cross Street	**10**	**2.59**
Main Street – Cross Street to Water Street	2	1.01
Main Street – Water Street to Penobscot Theatre	4	1.66
Main Street – Penobscot Theatre to Union Street	2	1.03
Main Street – Union Street to May Street	1	0.33
Main Street – May Street to Cedar Street	2	0.53
Main Street – Cedar Street to Fire Station	2	0.55
Main Street – Fire Station to Barker Street	1	0.47
Union Street – High Street to Columbia Street	1	0.47
Union Street – First Street to Main Street	2	0.65
Merchants Plaza – Broad Street Ext. to Bangor Aly	4	3.31
Broad Street Extension – Water Street to Merchants Plaza	1	0.68
Water Street – Main Street to Merchants Plaza	3	1.94
Kenduskeag Plaza West – Water Street to Car Bridge	1	0.56

As seen in the preceding tables, there are five locations within the study area, highlighted in bold print, that meet both of MaineDOT's criteria, designating them as high crash locations. Those locations are:

- Intersection of Main Street and Union Street
- Main Street from Cross Street to Broad Street
- State Street from Hammond Street to Harlow Street
- Central Street from Harlow Street to Hammond Street
- Harlow Street from Central Street to Franklin Street.

Collision diagrams were obtained from MaineDOT to evaluate these locations for any crash patterns that may indicate a correctable safety deficiency (see Appendix D). The diagrams are reviewed and evaluated as follows:

Intersection of Main and Union Street:
The intersection of Main Street and Union Street's majority of accidents were rear end collisions, typical of signalized intersections. There were also multiple angle collisions. There were three pedestrian crashes involving pedestrians in crosswalks. To address the pedestrian accidents, it is recommended that a leading pedestrian interval (LPI) be provided for each approach. Providing an LPI for each approach allows pedestrians an opportunity to enter the crosswalk 3 – 7 seconds before the concurrent movement lanes are given a green indication. This improvement will serve to increase the pedestrian safety of the intersection. Installing a flashing yellow left-turn signal at the easterly, westerly, and southerly approaches may decrease the amount of failures to yield.

Main Street – Cross Street to Broad Street:
Four of the 10 crashes along this portion of Main Street from Cross Street to Broad Street were a result of improper backing out of angled on-street parking stalls, into oncoming traffic. One crash at this location involved a pedestrian crossing outside a crosswalk, another involved a bicyclist who was struck by a vehicle that failed to yield. The improvements to Main Street mentioned in Chapter 5 *Recommended Improvements* section of this report are intended to address this issue. Replacing angled parking with parallel parking and implementing traffic calming measures will remove the risk of improper backing into oncoming traffic with poor sight lines, and slow traffic along Main Street to allow better opportunities for vehicles to maneuver on-street parking stalls. Refer to the proposed plan in Chapter 5 on page 46 of this report.

State Street – Hammond Street to Harlow Street:
Two of the fourteen crashes along the one-way portion of State Street from Hammond Street to Harlow Street were a result of improper backing out of angled on-street parking stalls, three were due to the improper use of parallel on-street parking stalls, and another six were associated with improper lane changes and two were following too close. The remaining crash involved a vehicle failing to yield to a pedestrian crossing the roadway. The improvements to State Street mentioned in Chapter 5 *Recommended Improvements* section of this report are intended to address these issues. Replacing the angled on-street parking with parallel on-street stalls with remove the risk of vehicles backing into oncoming traffic with poor sight lines. Recommended improvements to curbed sidewalk bump-outs, and on-street parking stall striping will provide clear areas for parking and reduce the potential for backing into other

parked vehicles. Recommended traffic calming measures, such as lane width reductions and a speed table will allow more reaction time for lane maneuvers. Refer to the proposed plan in Chapter 5 on page 41 of this report.

Central Street – Harlow Street to Hammond/Main Street:
Two of the crashes along the one-way portion of Central Street from Harlow Street to Hammond/Main Street were a result of parking maneuvers associated with angled parking, four were associated with improper lane changes, two were rear ends due to following too close and the remaining two were a hit and run and a failure to yield. The improvements to Central Street mentioned in Chapter 5 *Recommended Improvements* section of this report are intended to address these issues. Replacing angled on-street parking with parallel on-street stalls will remove the risk of vehicles backing into oncoming traffic with poor sight lines. Recommended improvements to curbed sidewalk bump-outs, lane width reductions, and speed tables will reduce vehicle speeds, allowing more reaction time for lane maneuvers. Implementing lane indication signs near the north side of Central Street will help give vehicles more time to plan and maneuver lane changes. Refer to the proposed plan in Chapter 5 on page 42 of this report.

Harlow Street – Central Street to Franklin Street:
Four of the eight crashes along the portion of Harlow Street from Central Street to Franklin Street involved improper backing related to parking. One additional crash was caused by a parking maneuver, while another was a hit and run, one was following too close and one was the result of not staying in proper lane. The improvements to Harlow Street mentioned in Chapter 5 *Recommended Improvements* section of this report are intended to address these issues. Traffic calming measures such as lane width reductions and curb bump-outs will serve to reduce speeds and allow for better reaction times to lane maneuvers. Proposed on-street parking stall striping and relocation of ADA accessible parking stalls will provide clear areas for parking and reduce the potential for backing into parked vehicles. Refer to the proposed plan in Chapter 5 on page 38 of this report.

TRAFFIC DATA COLLECTION

Turning movement/classification counts were conducted at the following key study area intersections during the PM peak hour period on November 1st and November 2nd, 2023 from 3:00 – 6:00 PM since the PM peak hour was selected by the City as the study analysis period:

- Harlow and Franklin Street
- Harlow, Central, and Center Street
- Harlow and Park Street
- Hancock and York Street
- Hammond, Main, State, and Central Street
- Hammond and Franklin Street
- Main and Broad Street
- Main, Middle, and Water Street
- Main and Union Street
- Union and High Street
- Main and Cedar Street
- Main and Railroad Street

Additional movement/classification counts were conducted at the following intersections during the PM peak hour period of 3:00 – 6:00 PM:

- Exchange and State Street (August 29, 2024)
- Independent, Broad, and Washington St (September 19, 2024)

Pedestrians and bicyclists were also recorded during the counts. The peak hours generally occurred from 4:30 – 5:30 PM. Exceptions include the Harlow/Franklin Street, Main/Water Street, and Exchange/State Street intersections where peak hours occurred from 4:15 – 5:15 PM, and the intersection of Hammond/Franklin Street where the peak hour occurred from 3:00 – 4:00 PM. Design and analysis of highway and roadway facilities are typically performed utilizing 30th highest hourly traffic volumes. Hence, these counts were factored to obtain 30th highest hour volumes for the traffic analysis. The count results are summarized in Figure 1 below.

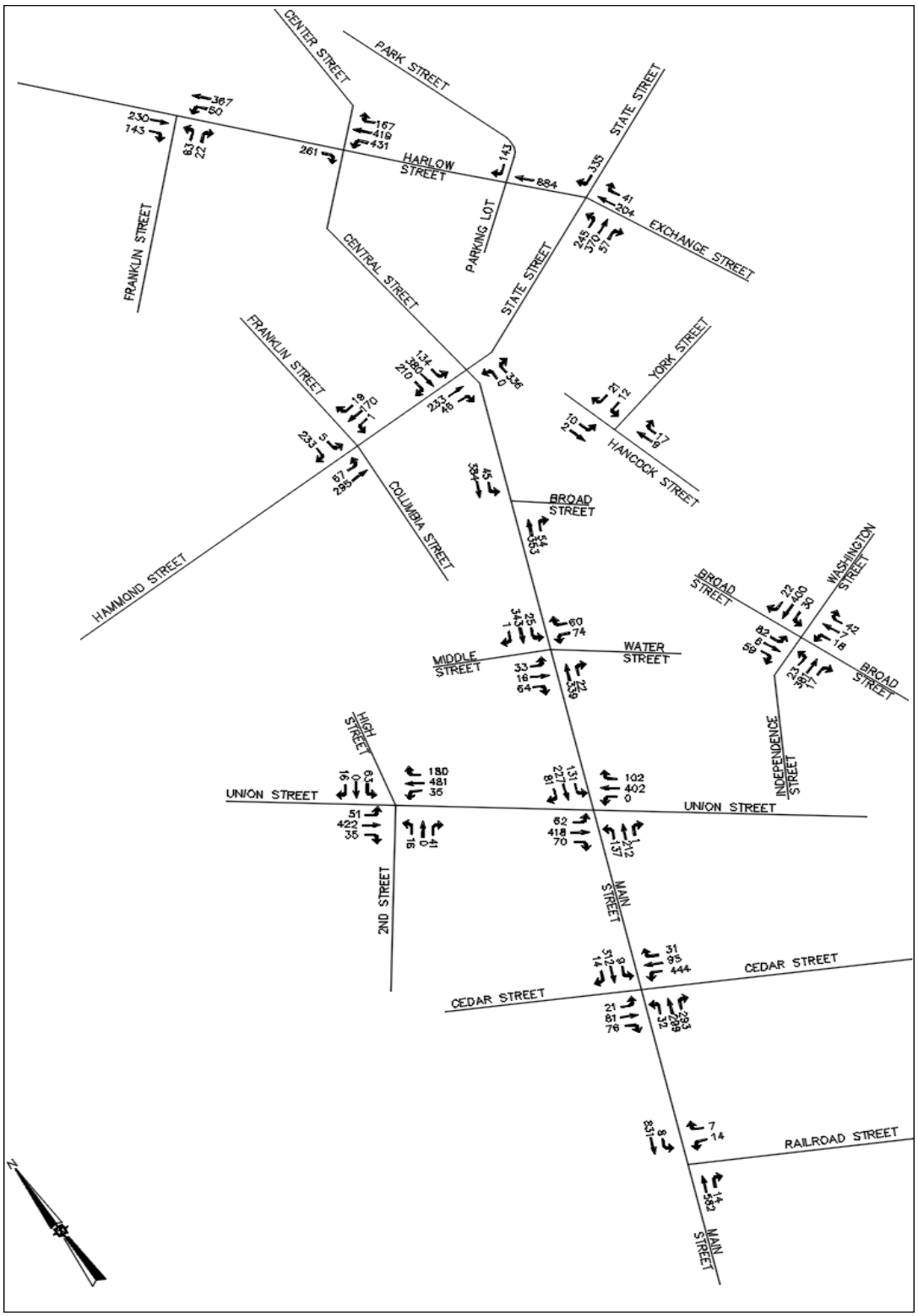


Figure 1

2024 Traffic Count Results for Study Area (30th highest hour volumes)

TRAFFIC VOLUMES

Average annual daily traffic (AADT) data for the area was obtained from "Traffic Volume Counts, 2011, 2013, 2014, 2015, 2017, 2020, and 2023 Annual Reports", published by MaineDOT and MaineDOT's Interactive Traffic Map. This data is summarized in the following table:

Average Annual Daily Traffic								
Location Description	2011	2013	2014	2015	2017	2020	2023	An. Growth
US 1A/SR 9(Main) S/O Old County Rd (N Jct)	--	--	6,100	--	--	--	6,480	0.7%
US 1A/SR 9 (Main St) @Hampden TL	7,300	--	7,550	--	--	4,640	7,880	0.7%
US 1A/SR 9 (Main St) SW/O Farm Rd	8,400	--	9,010	--	--	--	8,930	0.5%
Farm Rd NW/O US 1A/SR 9 (Main St)	7,640	--	5,020	--	--	--	5,100	0.0%
Main St SW/O W Market Sq	--	--	--	--	9,340	--	8,480	0.0%
Union St NW/O Second St	--	--	8,220	--	9,470	6,610	9,150	1.3%
Union St SE/O US 2/SR 100 (Hammond St)	9,800	--	--	--	10,080	--	9,050	0.0%
Ohio St NW/O US 2 (Hammond St)	--	--	--	--	2,970	--	3,130	0.9%
US 1A/SR 9 (J Chamberlain Br) @Brewer TL	14,690	--	13,830	--	12,910	11,740	14,910	0.1%
US 2/SR 100 (Hammond St) W/O Main St	--	--	--	--	5,400	--	5,110	0.0%
US 2/SR 100 (Hammond) W/O SR 222 (Union)	6,090	--	5,290	--	5,430	--	5,310	0.0%
US 2 (State St) E/O Exchange St	8,900	--	8,840	--	8,900	--	7,880	0.0%
US 2/SR 100 (Hammond St) E/O Union St	5,520	--	5,360	--	5,900	--	5,360	0.0%
US 2/SR 100 (Hammond St) W/O W Broadway	--	--	7,120	--	6,930	5,370	7,160	0.1%
US 2 (State St) NE/O Broadway	10,540	--	11,140	--	11,500	--	10,560	0.0%
Harlow St NW/O Central St	6,710	--	6,490	--	7,490	--	5,980	0.0%

A review of the above historical data shows increasing volumes for portions of Main Street, Union Street, Ohio Street, and Hammond Street from 2020 to 2023. Based on this, Sewall recommended a ½ % annual traffic growth rate for the future traffic projections in order to provide a conservative analysis. This growth rate recommendation was presented to MaineDOT's statewide modelling analyst and they concurred that a ½ % annual traffic growth rate was appropriate. The existing 2024 volumes were projected to 2044 conditions using this ½ % annual growth rate. The results are summarized in Figure 2 below.

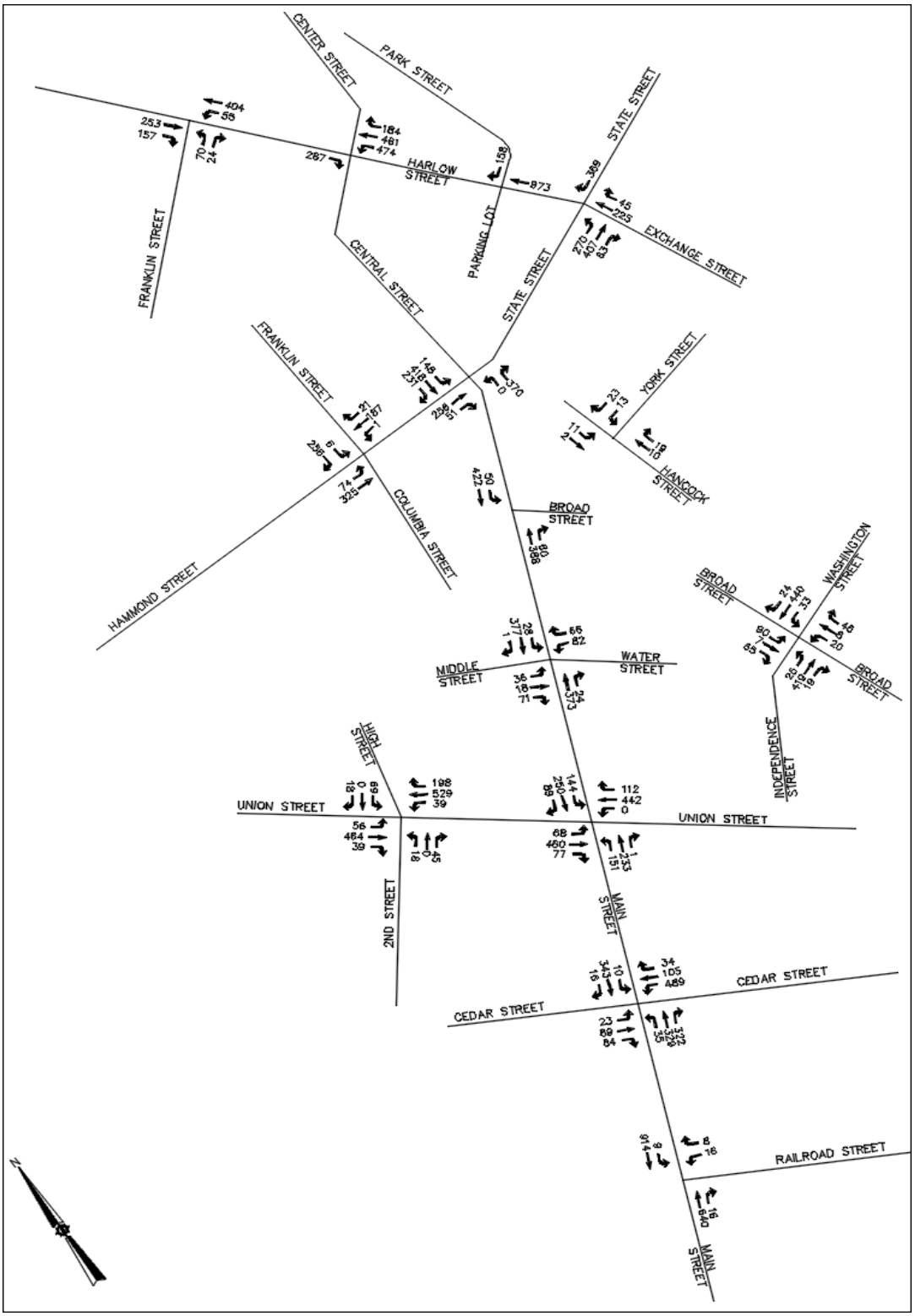


Figure 2

2044 Traffic Count Results for Study Area (Projected from 2024 Counts with ½ % annual growth rate) 30th highest hour volumes

CAPACITY ANALYSIS

Traffic operations are evaluated in terms of level of service (LOS). LOS is a qualitative measure that describes operations by letter designation. The levels range from A - very little delay to F - extreme delays. Level of service "D" is generally considered acceptable in urban locations while LOS "E" is generally considered the capacity of a facility and the minimum tolerable level. The LOS for signalized intersections is based upon the average control or signal delay per vehicle. The LOS for unsignalized intersections is based upon average control delay per vehicle for each minor, opposed movement. These criteria are defined in the following tables excerpted from the 2010 "Highway Capacity Manual":

Signalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 20.0
C	> 20.0 and <= 35.0
D	> 35.0 and <= 55.0
E	> 55.0 and <= 80.0
F	> 80.0

Unsignalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 15.0
C	> 15.0 and <= 25.0
D	> 25.0 and <= 35.0
E	> 35.0 and <= 50.0
F	> 50.0

CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS

The LOS was determined for the signalized study area intersections for existing 2024 conditions, projected 2044 conditions, and three alternative scenarios using Synchro 11 and SimTraffic modelling software. For the projected 2044 conditions, it was assumed that the traffic signal timings and phasings would be optimized. Alternative scenarios include:

- Projected 2044 A: Reduced lane width on Main Street to a single thru lane northbound on from Railroad Street to Union Street.
- Projected 2044 B: Two-way traffic downtown with roundabouts at Main/Hammond Street, Hammond/State/Exchange/Harlow Street, and Harlow/Central/Center Street.
- Projected 2044 C: Two-way traffic downtown with traditional traffic signals at Main/Hammond Street, Hammond/State/Exchange/Harlow Street, and Harlow/Central/Center Street.

The results are based on the average of ten (10) analysis runs in SimTraffic and are summarized in the following tables for the weekday PM peak hours:

Exchange Street, Harlow Street, & State Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Hammond Lefts	A (5.7)	A (8.2)	B (8.3)	--	C (29.8)
Eastbound Hammond Throughs	A (9.4)	D (36.8)	D (36.4)	--	C (22.7)
Eastbound Hammond Rights	A (5.0)	B (17.5)	B (16.3)	--	B (11.6)
Eastbound Hammond Overall	**A (7.7)**	**C (24.5)**	**C (24.6)**	**A (9.1)**	**C (23.1)**
Westbound State Lefts/Thrus	--	--	--	--	D (46.4)
Westbound State Rights	A (5.8)	C (25.6)	B (19.7)	--	A (1.5)
Westbound State Overall	**A (5.8)**	**C (25.6)**	**B (19.7)**	**A (6.1)**	**D (35.8)**
Northbound Exchange Lefts/Thrus	--	--	--	--	B (17.8)
Northbound Exchange Thrus	B (16.1)	A (7.6)	A (7.2)	--	--
Northbound Exchange Rights	A (3.3)	A (3.8)	A (3.2)	--	A (4.3)
Northbound Exchange Overall	**B (13.9)**	**A (7.0)**	**A (6.5)**	**A (7.4)**	**B (16.1)**
Southbound Harlow Lefts	--	--	--	--	--
Southbound Harlow Thrus	--	--	--	--	--
Southbound Harlow Rights	--	--	--	--	--
Southbound Harlow Overall	**--**	**--**	**--**	**A (3.7)**	**B (13.0)**
Intersection Overall	**A (8.4)**	**C (21.5)**	**B (19.8)**	**A (6.6)**	**C (23.7)**

-- Traffic movement does not exist for the listed scenario

As seen above, based upon the analysis results, there are currently no capacity concerns at the signalized intersection, which currently operates at LOS "A" overall, with all lanes at a LOS "B" or better. Acceptable levels of service are projected through 2044, with the overall level of service ranging from LOS "A" to "C" depending on the scenario, and all lanes at an acceptable LOS "D" or better. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

Central Street, Center Street & Harlow Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Harlow Rights	A (1.4)	A (1.5)	A (1.9)	--	--
Eastbound Harlow Overall	**A (1.4)**	**A (1.5)**	**A (1.9)**	**A (2.9)**	**A (8.8)**
Westbound Harlow Lefts	A (5.3)	A (5.8)	A (6.6)	--	B (13.5)
Westbound Harlow Thrus/Rights	A (1.8)	A (1.8)	A (1.9)	--	A (9.4)
Westbound Harlow Overall	**A (3.2)**	**A (3.5)**	**A (3.9)**	**A (5.5)**	**B (10.5)**
Northbound Central Street Overall	**--**	**--**	--	**A (2.7)**	**A (9.8)**
Intersection Overall	**A (2.9)**	**A (3.1)**	**A (3.5)**	**A (4.0)**	**A (9.9)**

-- Traffic movement does not exist for the listed scenario

As seen above, based upon the analysis results, there are currently no capacity concerns at this signalized intersection, which currently operates at LOS "A" overall. Similar levels of service are projected through 2044, with the LOS "A" overall, for all scenarios, and all lanes at LOS "B" or better. Therefore, we do not anticipate the need for intersection improvements to increase capacity under any scenario.

Main Street, Central Street, & Hammond Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Hammond Lefts/Thrus	--	--	--	--	C (34.2)
Eastbound Hammond Thrus	C (28.1)	B (12.7)	B (13.1)	--	--
Eastbound Hammond Thrus/Rights	C (31.1)	B (14.3)	B (16.0)	--	A (9.6)
Eastbound Hammond Overall	**C (29.9)**	**B (13.6)**	**B (14.9)**	**A (4.4)**	**C (22.0)**
Westbound Hammond Overall	--	--	--	**B (10.7)**	**D (35.4)**
Northbound Main Rights	A (2.9)	A (6.0)	A (8.8)	--	--
Northbound Main Overall	**A (2.9)**	**A (6.0)**	**A (8.8)**	**A (5.5)**	**C (20.3)**
Southbound Central Lefts	A (12.6)	B (17.6)	B (16.8)	--	A (8.8)
Southbound Central Thrus	A (8.8)	B (12.4)	C (22.5)	--	B (11.2)
Southbound Central Rights	A (8.4)	B (11.6)	B (11.7)	--	B (13.0)
Southbound Central Overall	**A (9.4)**	**B (13.1)**	**B (18.4)**	**A (3.1)**	**B (10.8)**
Intersection Overall	**B (12.3)**	**B (11.4)**	**B (15.2)**	**A (6.6)**	**C (23.9)**

-- Traffic movement does not exist for the listed scenario

As seen above, based upon the analysis results, there are currently no capacity concerns at the signalized intersection, which operates at LOS "B" overall, with all lanes at an acceptable LOS "C" or better. A similar overall level of service is projected through 2044, with LOS "A", "B" or "C" overall, depending on the scenario, and all lanes at an acceptable LOS "D" or better. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

Main Street & Broad Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Northbound Main Thrus	B (16.4)	C (27.4)	--	--	--
Northbound Main Rights	A (1.1)	A (1.7)	--	--	--
Northbound Main Thrus/Rights	--	--	B (12.0)	B (10.8)	C (19.1)
Northbound Main Overall	**B (14.4)**	**C (24.3)**	**B (12.0)**	**B (10.9)**	**C (19.1)**
Southbound Main Lefts	A (9.8)	B (12.6)	A (5.5)	B (14.9)	A (4.7)
Southbound Main Thrus	A (3.7)	A (5.1)	B (10.5)	A (5.8)	A (7.0)
Southbound Main Overall	**A (4.4)**	**A (5.9)**	**A (9.9)**	**A (6.3)**	**A (6.7)**
Intersection Overall	**A (9.4)**	**B (15.1)**	**B (11.0)**	**A (8.8)**	**B (12.8)**

-- Traffic movement does not exist for the listed scenario

As seen above, based upon the analysis results, there are currently no capacity concerns at the signalized intersection, which currently operates at LOS "A" overall, with all lanes at LOS "B" or better. Levels of service are expected to remain good in 2044, with either "A" or "B" ratings expected overall, depending on the scenario, and all lanes at LOS "C" or better. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

Main Street, Middle Street & Water Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Middle Lefts/Thrus/Rights	D (36.5)	C (23.1)	C (27.8)	C (27.9)	C (23.5)
Westbound Water Lefts	E (76.6)	D (54.9)	F (110.8)	D (50.8)	E (62.1)
Westbound Water Rights	A (6.4)	A (6.4)	A (6.5)	A (6.3)	A (6.3)
Westbound Water Overall	**D (45.6)**	**C (33.0)**	**E (65.6)**	**C (30.4)**	**D (36.7)**
Northbound Main Thrus	A (9.3)	B (15.7)	B (15.3)	B (16.4)	B (16.3)
Northbound Main Rights	A (1.1)	A (2.3)	B (2.1)	A (2.5)	A (2.4)
Northbound Main Overall	**A (8.8)**	**B (14.9)**	**B (14.6)**	**B (15.6)**	**B (15.6)**
Southbound Main Lefts/Thrus	C (22.0)	D (35.4)	D (55.0)	D (37.3)	D (43.4)
Intersection Overall	**C (21.9)**	**C (26.0)**	**D (38.6)**	**C (27.3)**	**C (30.3)**

As seen above, based upon the analysis results, the signalized intersection currently operates at LOS “C” overall. Similar levels of service are projected through 2044, with LOS “C” or “D” overall, depending on the scenarios. The Water Street westbound left lane currently operates at a LOS “E” and is projected to be LOS “D” into 2044 due to the assumption that the signal would be running at its optimum timing/phasing. Under projected A scenario, there would be a failing LOS for the westbound Water Street left turn lane. The approach overall would be operating at a LOS “E”. If scenario A is chosen, there will be a need for intersection improvements to increase this lane capacity.

Main Street & Union Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Union Lefts	C (31.5)	C (29.7)	C (29.5)	C (28.4)	C (27.2)
Eastbound Union Thrus/Rights	C (34.6)	D (37.2)	C (31.0)	C (33.2)	C (30.8)
Eastbound Union Overall	**C (34.4)**	**D (36.2)**	**C (30.8)**	**C (32.7)**	**C (30.5)**
Westbound Union Thrus	D (52.0)	F (81.1)	E (70.1)	E (63.7)	D (51.2)
Westbound Union Rights	A (5.2)	A (6.9)	A (6.3)	A (6.4)	A (5.9)
Westbound Union Overall	**D (42.5)**	**E (66.7)**	**E (57.1)**	**D (52.2)**	**D (42.1)**
Northbound Main Lefts	C (32.4)	D (54.7)	E (69.0)	D (48.8)	D (54.2)
Northbound Main Thrus	D (36.5)	D (41.0)	D (40.2)	D (39.8)	D (40.3)
Northbound Main Overall	**C (34.8)**	**D (46.3)**	**D (51.7)**	**D (43.5)**	**D (46.0)**
Southbound Main Lefts	C (27.1)	C (34.8)	D (41.9)	C (30.5)	D (37.3)
Southbound Main Thrus	D (36.5)	D (39.9)	D (46.8)	D (38.1)	D (45.3)
Southbound Main Rights	A (9.8)	B (12.6)	B (17.0)	B (10.9)	B (12.5)
Southbound Main Overall	**C (29.8)**	**C (34.2)**	**D (40.5)**	**C (31.5)**	**D (37.9)**
Intersection Overall	**D (35.4)**	**D (45.6)**	**D (44.4)**	**D (39.7)**	**D (38.5)**

As seen above, there are currently no capacity concerns at the signalized intersection, with all lanes currently operating at an acceptable LOS “D” or better. However, the Union Street westbound through lane is projected to operate at LOS “D”, “E” or “F” by 2044 depending on the scenario. The Main Street northbound left lane is projected to operate at a LOS “E” by 2044 in scenario A.

Main Street & Cedar Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Cedar Lefts/Thrus	E (60.8)	D (52.8)	D (54.1)	D (52.6)	D (46.5)
Eastbound Cedar Rights	A (8.4)	A (8.2)	A (7.9)	A (8.4)	A (9.4)
Eastbound Cedar Overall	**D (37.9)**	**C (35.0)**	**C (34.2)**	**C (32.9)**	**C (30.9)**
Westbound Cedar Lefts	E (57.0)	E (57.2)	D (52.4)	E (56.5)	D (45.2)
Westbound Cedar Thrus/Rights	C (34.4)	C (29.3)	C (29.9)	C (28.4)	C (24.7)
Westbound Cedar Overall	**D (43.8)**	**D (42.3)**	**D (39.9)**	**D (41.7)**	**C (34.7)**
Northbound Main Lefts	E (63.0)	D (50.1)	E (55.9)	D (45.7)	D (52.7)
Northbound Main Thrus	D (41.0)	D (40.3)	D (50.6)	D (36.4)	D (43.8)
Northbound Main Rights	A (4.5)	A (5.7)	A (4.3)	A (5.3)	A (5.0)
Northbound Main Overall	**C (24.3)**	**C (22.8)**	**C (29.8)**	**C (21.5)**	**C (24.1)**
Southbound Main Lefts	E (71.0)	D (51.0)	D (47.2)	D (53.7)	E (57.5)
Southbound Main Thrus	C (31.8)	C (33.9)	C (32.8)	C (33.5)	D (37.9)
Southbound Main Thrus/Rights	C (33.3)	D (35.5)	C (33.7)	C (34.8)	D (40.9)
Southbound Main Overall	**C (33.6)**	**D (35.3)**	**C (33.6)**	**C (34.7)**	**D (39.8)**
Intersection Overall	**C (34.1)**	**C (33.0)**	**C (34.5)**	**C (32.0)**	**C (31.5)**

As seen above, based upon the analysis results, the intersection currently operates at LOS “C” overall. Similar levels of service are projected through 2044, with LOS “C” overall, for all scenarios. This intersection should be optimized based on current volumes to improve LOS immediately. Cedar Street eastbound left/through lane, Cedar Street westbound left lane, Main Street northbound left lane, and Main Street southbound left lane all currently operate at a LOS “E”. In all future scenarios, lanes are projected to improve to a LOS “D” by 2044 with at least one turning movement in each scenario a LOS “E”. For the future conditions it was assumed the signals would be optimized.

Main Street & Railroad Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Westbound Railroad Lefts	D (44.8)	B (18.1)	C (32.2)	C (27.7)	B (19.0)
Westbound Railroad Lefts/Rights	A (6.6)	A (5.0)	B (11.6)	A (6.0)	A (6.0)
Westbound Railroad Overall	**C (29.5)**	**B (13.1)**	**C (23.6)**	**B (19.8)**	**B (15.7)**
Northbound Main Thrus	A (6.3)	A (6.8)	--	A (6.6)	A (6.8)
Northbound Main Thrus/Rights	A (6.7)	A (7.8)	B (13.2)	A (7.0)	A (8.1)
Northbound Main Overall	**A (6.6)**	**A (7.5)**	**B (13.2)**	**A (6.9)**	**A (7.7)**
Southbound Main Lefts	A (9.1)	A (6.0)	A (9.8)	A (7.9)	A (6.9)
Southbound Main Thrus	A (7.5)	A (7.9)	A (7.2)	A (6.4)	A (8.3)
Southbound Main Overall	**A (7.3)**	**A (7.8)**	**A (6.9)**	**A (6.3)**	**A (8.3)**
Intersection Overall	**A (7.3)**	**A (7.8)**	**A (9.7)**	**A (6.7)**	**A (8.2)**

-- Traffic movement does not exist for the listed scenario

As seen above, based upon the analysis results, the intersection currently operates at LOS “A” overall. Acceptable levels of service are projected through 2044, with LOS “A” overall, for all scenarios. Therefore, we do not anticipate the need for intersection improvements to increase this lane capacity.

Washington Street, Independent Street, & Broad Street

The LOS was for the intersection at Washington, Independent Street and Broad Street was modeled separately from the rest of the study area due to its location. Existing 2024 conditions, projected 2044 conditions, and an alternative roundabout scenario were analyzed using Synchro 11 and SimTraffic modelling software. For the projected 2044 conditions, we assumed the signal timings and phasing would be optimized.

The results, based on the average of ten (10) analysis runs, and are summarized in the following table for the weekday PM peak hour:

PM Peak Hour Level of Service			
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Roundabout LOS (sec delay)
Eastbound Independent Lefts	A (7.9)	A (9.0)	--
Eastbound Independent Thrus/Rights	A (6.2)	A (7.0)	--
Eastbound Independent Overall	A (6.3)	A (7.1)	A (3.6)
Westbound Washington Lefts/Thrus	A (8.6)	B (11.0)	--
Westbound Washington Rights	A (2.1)	A (2.4)	--
Westbound Washington Overall	A (8.3)	B (10.5)	A (3.6)
Northbound Broad Lefts/Thrus	B (11.9)	B (11.5)	--
Northbound Broad Rights	A (4.4)	A (4.4)	--
Northbound Broad Overall	A (7.5)	A (7.2)	A (3.1)
Southbound Broad Lefts	B (15.1)	B (13.6)	--
Southbound Broad Thrus/Lefts	A (6.0)	A (6.6)	--
Southbound Broad Overall	B (11.1)	B (10.5)	A (3.7)
Intersection Overall	A (7.8)	A (9.0)	A (3.6)

-- Traffic movement does not exist for the listed scenario

As seen above, based upon the analysis results, there are currently no capacity concerns at this intersection, which operates at LOS “A” overall, with all lanes at LOS “B” or better. Similar levels of service are projected through 2044, with LOS “A” overall, and all lanes at LOS “B” or better. Similar levels of service are projected through 2044 for the roundabout scenario, with LOS “A” overall, and all lanes. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

Capacity Analysis for Unsignalized Intersections

The LOS was similarly calculated for the unsignalized study area intersections for existing 2024 conditions, projected 2044 conditions, for the three alternative scenarios using Synchro 11/SimTraffic. The results are summarized in the following tables:

Second Street, High Street & Union Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Union Lefts/Thrus/Rights	C (16.5)	D (26.5)	D (26.5)	C (20.1)	C (21.7)
Westbound Union Lefts/Thrus/Rights	B (13.9)	C (19.0)	C (20.0)	C (16.1)	C (16.2)
Northbound Second Lefts/Thrus/Rights	F (128.6)	F (170.5)	F (308.8)	F (232.3)	F (151.5)
Southbound High Lefts/Thrus/Rights	F (264.7)	F (739.9)	F (665.0)	F (601.8)	F (716.5)
Intersection Overall	**D (33.9)**	**F (60.7)**	**F (64.6)**	**F (55.2)**	**F (57.6)**

As seen above, based upon the analysis results, the intersection currently operates at LOS “D” overall with two failing approaches. Levels of service are projected through 2044, with LOS “F” overall, for all scenarios. The analysis determined that all High Street southbound traffic movements and all Second Street northbound traffic movements operate at LOS “F” during the summer PM peak hour. By 2044, the delay for all northbound and southbound movements are projected to become excessive LOS “F” delays.

Columbia Street, Franklin Street & Hammond Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Hammond Lefts/Thrus/Rights	A (4.4)	A (3.4)	A (3.5)	A (3.5)	A (5.0)
Westbound Hammond Lefts/Thrus/Rights	A (0.7)	A (0.9)	A (0.9)	A (1.2)	A (1.6)
Southbound Franklin Lefts/Thrus/Rights	A (5.8)	A (6.0)	A (6.3)	A (6.0)	A (5.9)
Intersection Overall	**A (3.9)**	**A (3.5)**	**A (3.7)**	**A (3.2)**	**A (3.9)**

As seen above, based upon the analysis results, there are no capacity concerns at this intersection, which currently operates at LOS "A" overall, with all lanes at LOS "A" or better. Similar levels of service are projected through 2044, with LOS "A" overall, and all lanes at LOS "A", for all scenarios. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

Franklin Street & Harlow Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Harlow Thrus/Rights	A (1.1)	A (1.2)	A (1.1)	A (1.2)	A (1.1)
Westbound Harlow Lefts/Thrus	A (1.7)	A (1.8)	A (1.8)	A (1.7)	A (2.2)
Northbound Franklin Lefts/Rights	A (8.8)	B (11.0)	A (9.7)	B (10.6)	A (9.4)
Intersection Overall	**A (2.1)**	**A (2.5)**	**A (2.2)**	**A (2.4)**	**A (2.5)**

As seen above, based upon the analysis results, there are currently no capacity concerns at this intersection, which operates at LOS "A" overall, with all lanes at LOS "A". Similar levels of service are projected through 2044, with LOS "A" overall, and all lanes at LOS "B" or better. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

Park Street & Harlow Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Eastbound Harlow Overall	--	--	--	A (0.4)	A (1.4)
Westbound Harlow Lefts/Thrus	A (0.8)	A (0.8)	A (0.9)	A (1.3)	A (0.7)
Westbound Harlow Thrus/Rights	A (6.5)	A (9.2)	A (9.4)	--	A (3.4)
Westbound Harlow Overall	**A (4.1)**	**A (5.7)**	**A (5.8)**	**A (1.3)**	**A (2.6)**
Southbound Park Rights	B (11.2)	C (18.0)	C (19.9)	A (5.3)	A (4.6)
Intersection Overall	**A (5.1)**	**A (7.4)**	**A (7.8)**	**A (2.0)**	**A (2.7)**

-- Traffic movement does not exist for the listed scenario

As seen above, based upon the analysis results, there are currently no capacity concerns at this intersection, which currently operates at LOS "A" overall, with all lanes at LOS "B" or better. Acceptable levels of service are projected through 2044, with LOS "A" overall, with all lanes at LOS "C" or better, for all scenarios. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

Hancock Street & York Street

PM Peak Hour Level of Service					
Approach/Lane	2024 Existing LOS (sec delay)	2044 Projected LOS (sec delay)	2044 Projected A LOS (sec delay)	2044 Projected B LOS (sec delay)	2044 Projected C LOS (sec delay)
Westbound York Lefts/Rights	A (3.2)	A (3.3)	A (3.5)	A (3.4)	A (3.4)
Northbound Hancock Thrus/Rights	A (0.1)	A (0.1)	A (0.0)	A (0.1)	A (0.1)
Southbound Hancock Lefts/Thrus	A (1.2)	A (1.1)	A (1.3)	A (1.3)	A (1.2)
Intersection Overall	**A (1.7)**	**A (1.7)**	**A (1.9)**	**A (1.9)**	**A (1.8)**

As seen above, based upon the analysis results, there are no capacity concerns at this intersection, which currently operates at LOS "A" overall, with all lanes at LOS "A". Similar levels of service are projected through 2044, with LOS "A" overall, and all lanes at LOS "A" or better. Therefore, we do not anticipate the need for intersection improvements to increase capacity.

As seen in the preceding tables, other than the capacity constraint previously identified at the unsignalized intersection of Second Street, High Street, and Union Street, there are no other capacity concerns, under existing 2024 or projected 2044 volumes.

QUEUE ANALYSIS

In addition to level of service, queues were also evaluated using SimTraffic, to assure that adequate storage will be available in existing turn lanes to store projected queues in 2044. Queue storage is considered to be adequate when the queue length does not exceed the existing lane storage length. Alternative storage scenarios include:

- Projected 2044 A: Reduced lane width on Main Street to a single thru lane northbound on Main Street from Railroad Street to Union Street
- Projected 2044 B: Two-way traffic downtown with roundabouts at Main/Hammond Street, Hammond/State/Exchange/Harlow Street, and Harlow/Central/Center Street.
- Projected 2044 C: Two-way traffic downtown with traditional traffic signals at Main/Hammond Street, Hammond/State/Exchange/Harlow Street, and Harlow/Central/Center Street.

The results, based upon the average of ten (10) runs in SimTraffic, are summarized in the following tables:

Central Street, Center Street & Harlow Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Harlow Rights	---	55’	57’	71’	--	--
Eastbound Harlow Lefts/Thrus/Rights	--	--	--	--	57’	140’
Westbound Harlow Lefts	---	111’	134’	149’	--	98’
Westbound Harlow Thrus/Rights	---	58’	64’	62’	--	153’
Westbound Harlow Lefts/Thrus/Rights	--	--	--	--	133’	--
Northbound Central Lefts/Thrus/Rights	--	--	--	--	63’	155’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, the queue lengths at the signalized intersection in the existing condition are 111’ or less. The nearest intersection is 300’ away, so there is no storage issue identified here. As projected in 2044, the queue lengths get longer but again there are no storage issues.

Exchange Street, Harlow Street, & State Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound State Lefts	---	98’	224’	190’	--	139’
Eastbound State Thrus	---	178’	390’	383’	--	292’
Eastbound State Rights	75’	86’	115’	125’	--	109’
Eastbound State Lefts/Thru/Rights	--	--	--	--	214’	--
Westbound State Lefts/Thrus	--	--	--	--	--	359’
Westbound State Rights	---	172’	374’	320’	--	65’
Westbound State Lefts/Thrus/Rights	--	--	--	--	122’	--
Northbound Exchange Lefts/Thrus	--	--	--	--	--	187’
Northbound Exchange Thrus	---	146	114’	116’	--	--
Northbound Exchange Rights	50’	68’	54’	53’	--	78’
Northbound Exchange Lefts/Thrus/Rights	--	--	--	--	121’	--
Southbound Exchange Lefts/Thrus/Rights	125'	--	--	--	66’	121’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

There are existing storage concerns on State Street eastbound right and northbound on Exchanges Street right, where the queue length exceeds its storage length. As projected in 2044, the queue lengths increase and storage is still an issue for movements listed above, in scenarios A and C.

Main Street, Central Street & Hammond Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Hammond Lefts/Thrus	--	--	--	--	--	146’
Eastbound Hammond Thrus	---	123’	96’	96’	--	--
Eastbound Hammond Thrus/Rights	---	164’	120’	127’	--	104’
Eastbound Hammond Lefts/Thrus/Rights	--	--	--	--	99’	--
Westbound Hammond Lefts/Thrus/Rights	--	--	--	--	201’	445’
Northbound Main Rights	75’	48’	95’	120’	--	--
Northbound Main Lefts/Thrus/Rights	75’	--	--	--	95’	134’
Southbound Central Lefts	---	91’	107’	165’	--	50’
Southbound Central Thrus	---	188’	201’	289’	--	105’
Southbound Central Rights	275’	133’	148’	206’	--	32’
Southbound Central Lefts/Thrus/Rights	--	--	--	--	70’	--

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

Main Street & Broad Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Northbound Main Thrus	---	295’	325’	--	--	--
Northbound Main Rights	50’	66’	88’	--	--	--
Northbound Main Thrus/Rights	--	--	--	197’	169’	262’
Southbound Main Lefts	75’	57’	59’	55’	78’	53’
Southbound Main Thrus	75’	96’	97’	122’	103’	108’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are existing storage concerns on Main Street northbound right, where the queue length exceeds its storage length. As projected in 2044, the queue lengths increase, and storage remains an issue for movement listed above. If scenario A, B or C are chosen then the proposed improvements will accommodate the queuing vehicles.

Main Street, Middle Street & Water Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Middle Lefts/Thrus/Rights	---	138’	112’	125’	132’	105’
Westbound Water Lefts	165’	169’	136’	255’	114’	135’
Westbound Water Rights	150’	78’	80’	122’	57’	63’
Northbound Main Thrus	275’	184’	252’	249’	248’	246’
Northbound Main Rights	100’	51’	79’	72’	83’	67’
Southbound Main Lefts/Thrus	475’	320’	397’	491’	397’	422’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

Main Street & Union Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Union Lefts	150’	159’	179’	167’	165’	160’
Eastbound Union Thrus/Rights	---	466’	497’	451’	453’	455’
Westbound Union Thrus	---	531’	751’	699’	672’	589’
Westbound Union Rights	225’	237’	295’	276’	285’	257’
Northbound Main Lefts	625’	178’	223’	244’	207’	209’
Northbound Main Thrus	625’	254’	278’	266’	263’	254’
Southbound Main Lefts	100’	149’	151’	151’	150’	153’
Southbound Main Thrus	275’	298’	305’	309’	299’	307’
Southbound Main Rights	100’	139’	149’	151’	146’	153’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are existing storage concerns on Union Street east and westbound right and left turns, where the queue length exceeds its storage length. As projected in 2044, the queue lengths increase and storage is still an issue for movements listed above, in all scenarios. The Union Street westbound through queue length is projected to significantly increase in all projected scenarios. This corresponds with the signalized intersection analysis review above and is partially caused by the coordination along Main Street intended to move commuters into and out of downtown efficiently.

Main Street & Cedar Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Cedar Lefts/Thrus	---	160’	169’	162’	167’	141’
Eastbound Cedar Rights	150’	75’	91’	92’	95’	75’
Westbound Cedar Lefts	225’	251’	269’	265’	267’	260’
Westbound Cedar Lefts	225’	264’	271’	271’	271’	272’
Westbound Cedar Thrus/Rights	---	299’	331’	288’	314’	281’
Northbound Main Lefts	150’	76’	79’	127’	69’	77’
Northbound Main Thrus	525’	168’	169’	--	160’	176’
Northbound Main Thrus	525’	233’	214’	381’	212’	223’
Northbound Main Rights	150’	179’	175’	228’	168’	173’
Southbound Main Lefts	100’	47’	46’	46’	50’	42’
Southbound Main Thrus	625’	168’	164’	164’	165’	178’
Southbound Main Thrus/Rights	625’	181’	174’	173’	176’	185’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are existing storage concerns on Cedar Street westbound left and northbound on Main Street right, where the queue length exceeds its storage length. As projected in 2044, the queue lengths increase and storage is still an issue for movements listed above, for all scenarios. This is partially caused by the coordination along Main Street intended to move commuters into and out of downtown efficiently.

Main Street & Railroad Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Westbound Railroad Lefts	---	40’	38’	45’	43’	41’
Westbound Railroad Lefts/Rights	75’	30’	27’	32’	28’	26’
Northbound Main Thrus	---	101’	119’	--	110’	177’
Northbound Main Thrus/Rights	---	176’	200’	355’	183’	321’
Southbound Main Lefts	125’	27’	38’	34’	40’	25’
Southbound Main Thrus	525’	208’	216’	229’	212’	221’
Southbound Main Thrus	525’	235’	243’	258’	241’	244’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

Second Street, High Street & Union Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Union Lefts/Thrus/Rights	---	361’	523’	515’	421’	431’
Westbound Union Lefts/Thrus/Rights	---	355’	417’	426’	395’	398’
Northbound Second Lefts/Thrus/Rights	---	241’	241’	382’	348’	227’
Southbound High Lefts/Thrus/Rights	---	359’	536’	527’	503’	521’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen in the table above, several queue lengths are projected to increase significantly, further substantiating the need for an in-depth review of this unsignalized intersection.

Columbia Street, Franklin Street & Hammond Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Hammond Lefts/Thrus/Rights	---	109’	75’	81’	76’	145’
Westbound Hammond Lefts/Thrus/Rights	---	33’	40’	41’	22’	19’
Southbound Franklin Lefts/Thrus/Rights	---	91’	99’	107’	93’	93’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

Franklin Street & Harlow Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Harlow Thrus/Rights	---	6’	7’	8’	9’	8’
Westbound Harlow Lefts/Thrus	---	81’	91’	89’	88’	84’
Northbound Franklin Lefts/Rights	---	64’	71’	66’	73’	67’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

Park Street & Harlow Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Eastbound Harlow Thrus/Rights	--	--	--	--	9’	40’
Westbound Harlow Lefts/Thrus	---	22’	28’	34’	--	5’
Westbound Harlow Thrus	--	--	--	--	--	22’
Westbound Harlow Thrus/Rights	---	33’	47’	66’	--	--
Southbound Park Rights	---	88’	116’	129’	--	--
Southbound Park Lefts/Rights	--	--	--	--	--	--
Southbound Park Lefts/Thrus/Rights	--	--	--	--	73’	72’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

Hancock Street & York Street

PM 95th Percentile Queue Lengths						
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Projected A	2044 Projected B	2044 Projected C
Westbound York Lefts/Rights	---	48’	48’	52’	52’	49’
Northbound Hancock Thrus/Rights	---	--	3’	--	--	2’
Southbound Hancock Lefts/Thrus	---	8’	6’	7’	7’	8’

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

The queues for the intersection at Washington, Independent Street and Broad Street was modeled separately from the rest of the study area due to its location. Existing 2024 conditions, projected 2044 conditions, and an alternative roundabout scenario were analyzed using Synchro 11 and SimTraffic modelling software to assure that adequate storage will be available in existing turn lanes to store projected queues in 2044. For the projected 2044 conditions, we assumed the signals would be working at their optimum timing and phase conditions. Queue storage is considered to be adequate when the queue length does not exceed the existing lane storage length.

The results are based on the average of ten (10) analysis runs in SimTraffic and are summarized in the following table for the weekday PM peak hours:

Washington Street, Independent Street, & Broad Street

PM 95th Percentile Queue Lengths				
Approach/Lane	Existing Storage	2024 Existing	2044 Projected	2044 Roundabout
Eastbound Independent Lefts	125	39	37	--
Eastbound Independent Thrus/Rights	---	150	151	--
Eastbound Independent Lefts/Thrus/Rights	--	--	--	78
Westbound Washington Lefts/Thrus	---	171	220	--
Westbound Washington Rights	---	28	31	--
Westbound Washington Lefts/Thrus/Rights	--	--	--	66
Northbound Broad Lefts/Thrus	---	33	34	--
Northbound Broad Rights	100	35	35	--
Northbound Broad Lefts/Thrus/Rights	--	--	--	43
Southbound Broad Lefts	150	74	75	--
Southbound Broad Thrus/Right	---	53	54	--
Southbound Broad Lefts/Thrus/Rights	--	--	--	68

-- Traffic movement does not exist for the listed scenario

--- Lane storage is not applicable, thru lane with no defined storage

As seen above, there are currently no locations where queue lengths are routinely greater than the available storage. As projected in 2044, the queue lengths get longer but there are still no anticipated storage issues.

APPENDIX B

TRUCK TURNING RADIUS DIAGRAMS FOR SELECT INTERSECTIONS
BIKE LANE ALTERNATIVES DESIGN STUDY

TURNING RADUIS DIAGRAMS FOR SELECT INTERSECTIONS

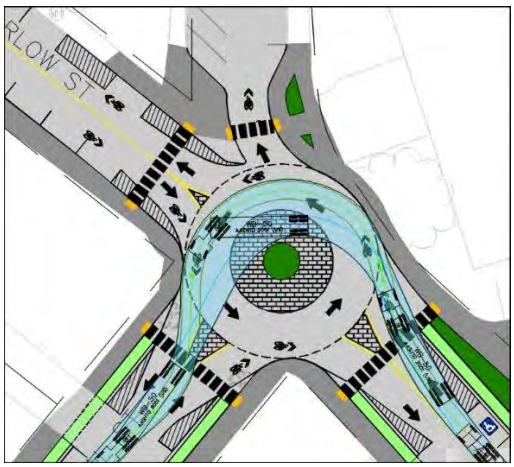
The truck turning radius and maneuverability was a consideration in the design analysis for traffic flow in the Circular Core. The following includes radius diagrams and summary tables for the three intersections located in the Circular Core. The diagrams compare existing conditions, signalized intersections (recommended Option A), and roundabouts (alternative Option C). See more information about each option in the Report Study on pages 30 to 45.

Also included are comparative diagrams for the Washington/Broad/Independent Street intersection alternatives. The diagrams summarize the turning radius limitations for signalized intersection (recommended Option A) and the roundabout intersection (alternative Option B). See the description and table summary in the Report Summary pages 51 to 53.

Central Street, Harlow Street & Center Street

Existing WB-50: Left turn from Harlow Street onto Central Street. Truck is shown is shown being able to maneuver the left turn.

Option A WB-50: Left turn from Harlow Street onto Central Street. Truck is shown is shown using the center mountable island to complete the turn.



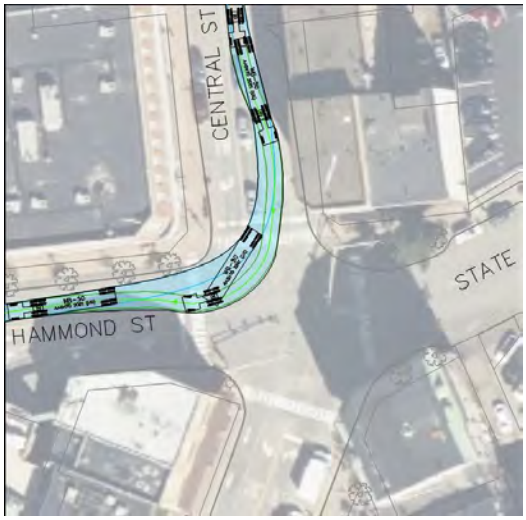
Option C WB-50: Left turn from Harlow Street onto Central Street. Truck is shown entering the roundabout, using the mountable curbed island in the center and at the exit to complete the turn.

Turing Radius Limitations for the Harlow / Center / Central Street Intersection

Table below compares the intersection design alternatives. The comparison shows turning radius restrictions between Existing Conditions, Option A (described in Report on page 32), and Option C (described in Report on page 40).

INTERSECTION TURN	NO IMPROVEMENTS (EXISTING CONDITIONS)	ONE-WAY WITH SIGNALIZED INTERSECTIONS (OPTION A)	TWO-WAY WITH ROUNDABOUTS (OPTION C)
Right onto Center from Harlow	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Straight on Harlow (heading north)	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Left onto Central from Harlow	• WB50, Bus, and Fire can maneuver • WB50 occupies both Central St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies all lanes and goes over mountable island curb	• WB50, Bus, and Fire can maneuver • WB50 goes over center and exit mountable curb island WB50 goes into other lane at exit
Right onto Central from Harlow	• WB50, Bus, and Fire can maneuver • WB50 occupies both Central St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies all Central St lanes and goes over mountable island	• WB50, Bus, and Fire can maneuver • WB50 goes over entrance and exit mountable curb island
Straight on Harlow (heading south)	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Left on Center from Harlow	• N/A	• N/A	• WB50 cannot maneuver • Bus and Fire can maneuver
Right on Harlow from Central	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over center, entrance and exit mountable curb island
Straight on Center from Central	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Left on Harlow from Central	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over center and exit mountable curb island

Central Street, Hammond Street, Main Street & State Street



Existing WB-50: Right turn from Central Street onto Hammond Street. Truck is shown in the left turn lane to turn right to avoid crossing into opposing lane. Its assumed that large trucks avoid making this turn and have alternative routes.

Option A WB-50: Right turn from Central Street onto Hammond Street. Truck is shown in the left turn lane to turn right to avoid crossing into opposing lane.

Option C WB-50: Right turn from Central Street onto Hammond Street. Truck is shown entering the roundabout, turning right then using the mountable curbed island at the exit and briefly crossing into opposing lane.

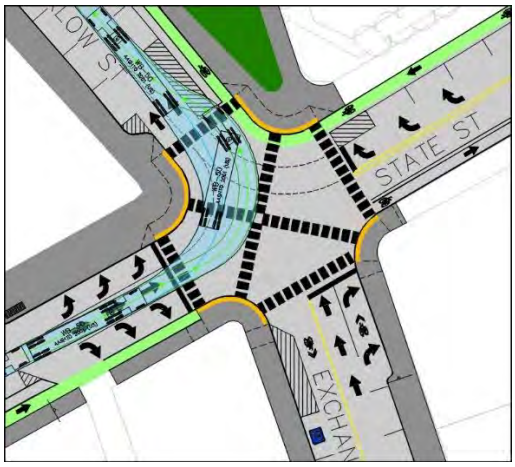
Turing Radius Limitations for the Hammond / Central / State / Main Street Intersection

Table below compares the intersection design alternatives. The comparison shows turning radius restrictions between Existing Conditions, Option A (described in report on page 33), and Option C (described in Report on page 41).

INTERSECTION TURN	NO IMPROVEMENTS (EXISTING CONDITIONS)	ONE-WAY WITH SIGNALIZED INTERSECTIONS (OPTION A)	TWO-WAY WITH ROUNDABOUTS (OPTION C)
Right onto Central from State	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over entrance and exit mountable curb island • WB50 goes into other lane at exit
Straight onto Hammond from State	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over entrance mountable curb island
Left onto Main from State	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over center, entrance and exit mountable curb island • WB50 goes into other lane at exit
Right onto Hammond from Central	• WB50, Bus, and Fire can maneuver • WB50 occupies all Central St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies all Central St lanes	• WB50, Bus, and Fire can maneuver • WB50 goes over exit mountable curb island • WB50 goes into other lane at exit
Straight on Main from Central	• No Issues for • WB50, Bus, and Fire	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver
Left on State from Central	• WB50, Bus, and Fire can maneuver • WB50 occupies two Central St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies two Central St lanes	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Right on Main from Hammond	• WB50, Bus, and Fire can maneuver • WB50 occupies both Hammond St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies both Hammond St lanes	• WB50, Bus, and Fire can maneuver • WB50 goes over center, entrance and exit mountable curb island • WB50 goes into other lane at exit
Straight on State from Hammond	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Left on Central from Hammond	• N/A	• N/A	• WB50 cannot maneuver Bus and Fire can maneuver
Right on State from Main	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver
Straight on Central from Main	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Left on Hammond from Main	• N/A	• N/A	• WB50, Bus, and Fire can maneuver • WB50 goes over center and exit mountable curb island

State Street, Harlow Street & Exchange Street

Existing WB-50: Left turn from State Street onto Harlow Street. Truck is shown being able to maneuver the left turn from the middle thru lane.



Option A WB-50: Left turn from State Street onto Harlow Street. Truck is shown is shown being able to maneuver the left turn from the middle thru lane.

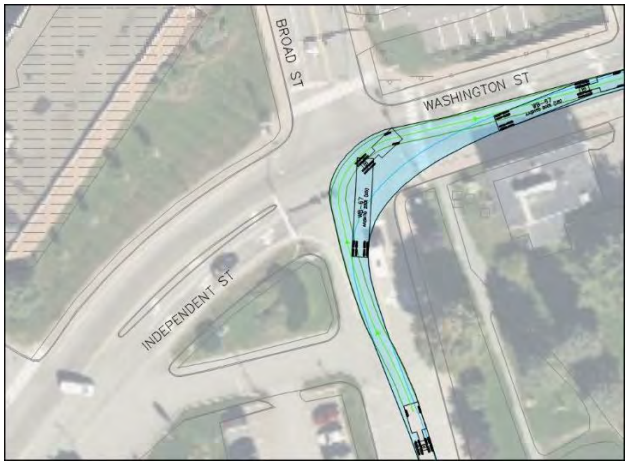
Option C WB-50: Left turn from State Street onto Harlow Street. Truck is shown entering the roundabout, using the mountable curbed center island to complete the turn.

Turing Radius Limitations for the State / Harlow / Exchange Street Intersection

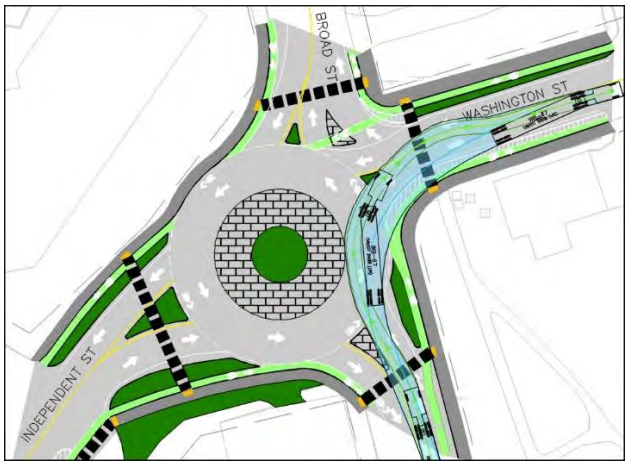
Table below compares the intersection design alternatives. The comparison shows turning radius restrictions between Existing Conditions, Option A (described in report on page 34), and Option C (described in Report on page 42).

INTERSECTION TURN	NO IMPROVEMENTS (EXISTING CONDITIONS)	ONE-WAY WITH SIGNALIZED INTERSECTIONS (OPTION A)	TWO-WAY WITH ROUNDABOUTS (OPTION C)
Right onto State from Exchange	• WB50, Bus, and Fire can maneuver • WB50 occupies all Exchange St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies all Exchange St lanes	• WB50, Bus, and Fire can maneuver
Straight onto Harlow from Exchange	• NA	• NA	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Left onto State from Exchange	• NA	• NA	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island • WB50 goes into other lane at exit
Right onto Harlow from State	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver
Straight on State (heading west)	• NA	• NA	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island • WB50 goes into other lane at exit
Left on Exchange from State	• NA	• NA	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Right on State from Harlow	• NA	• NA	• WB50, Bus, and Fire can maneuver • WB50 goes over center and exit mountable curb island • WB50 goes into other lane at exit
Straight on Exchange from Harlow	• NA	• NA	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Left on State from Harlow	• NA	• NA	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island
Right on Exchange from State	• WB50, Bus, and Fire can maneuver • WB50 occupies all State St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies all lanes on State Street	• WB50, Bus, and Fire can maneuver • WB50 goes over entrance and exit mountable curb island • WB50 goes into other lane at exit
Straight on State (heading east)	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver	• WB50, Bus, and Fire can maneuver
Left on Harlow from State	• WB50, Bus, and Fire can maneuver • WB50 occupies both Harlow St lanes	• WB50, Bus, and Fire can maneuver • WB50 occupies State St thru lane	• WB50, Bus, and Fire can maneuver • WB50 goes over center mountable curb island

Broad Street, Washington Street & Independent Street



Existing WB-67: Right turn from Broad Street onto Washington Street. Truck is shown in the opposing lane to start the turn and continues in the opposing lane to complete the turn.



Roundabout Option WB-67: Right turn from Broad Street onto Washington Street. Truck is shown is shown entering the roundabout, using the mountable curbed islands at the entrance, center and exit of the roundabout to complete the turn.

BIKE LANE ALTERNATIVES STUDY

Throughout the design process, several bike lane designs were considered with respect to ease of use, comfort and safety, and existing design guidance. The Sewall team looked at site conditions, the connection with the larger network of potential cycling routes and reviewed public comments as part of the bike lane design process.

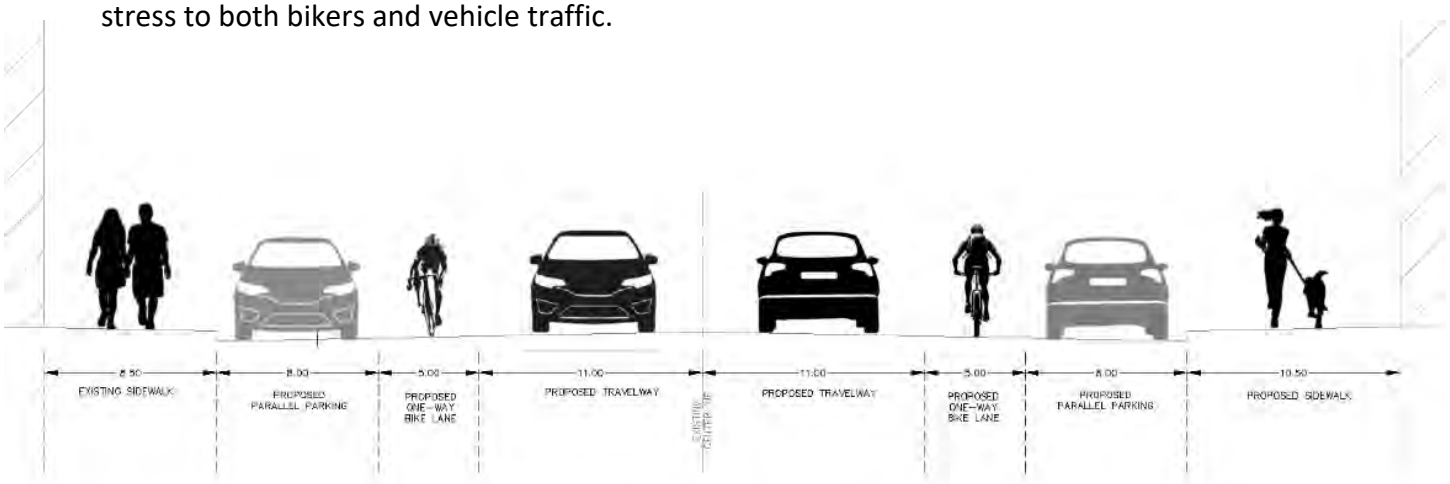
Ultimately, the separated one-way bike lane (positioned between on-street parking and the curb and separated by a painted median) was selected as the best design solution.

Since various bike lane design alternatives were included in the study process, the other alternatives are described below as reference points. *However, the design alternatives are not formal recommendations and are not included in the plans presented in this study.*

Alternative A: One-way Buffered Lanes

This design was one of the first to be considered, as it was a configuration recommended by the National Association of City Transportation Officials (NACTO). Ideally, NACTO recommends a 1.5-foot buffer on both sides of a bike lane to safely separate the bikers from on-street parking and vehicle travel lanes. This option considered the bike lane between the travel way and parking.

In the study area, there is only enough existing pavement width to provide a single buffer between on-street parking and bikers, to protect bikers from being doored by parked vehicles. While this configuration is the simplest and easiest to install, there are limited safety measures in place for bikers. This design would allow vehicles to enter the bike lanes from both the travel lanes and parallel parking stalls, providing the biker with little protection from traffic, increasing stress to both bikers and vehicle traffic.

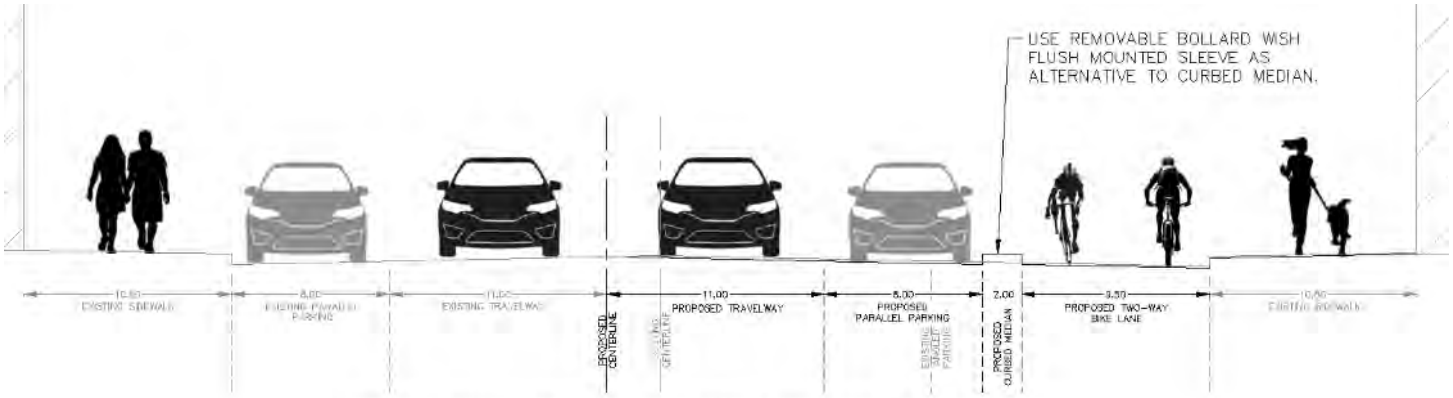


TWO-WAY TRAFFIC WITH TWO ONE-WAY BIKE LANES TYPICAL SECTION
FRANKLIN STREET

Alternative B: Two-way Separated/Protected Bike Lanes

This design was considered as an alternative to the selected One-way Separated Bike Lane, to conserve road width while still implementing safe bike lanes. Instead of having a single bike lane on either side of the roadway, this configuration combined both bike lanes on one side of the road with a separator between the bike lanes and on-street parallel parking stalls. This design would allow each bike lane to be narrowed from 5 to 4 feet, with striping separating the two bike lanes. The 2 feet of saved roadway width would be applied back to the travel lanes and on-street parallel parking stalls.

While this offers a safe alternative, cyclists would have difficulty interacting at intersections and would make it difficult for cyclists to enter the bike lanes from parts of Bangor without existing bike lanes. This design would need to be more widely developed throughout the rest of Bangor for it to be easily maneuverable for bikers. While this design conserved the overall footprint of the bike lanes, it would be anomalous to implement in the heart of Bangor where there are many intersections to maneuver, and no existing bike lanes entering downtown from other parts of Bangor.

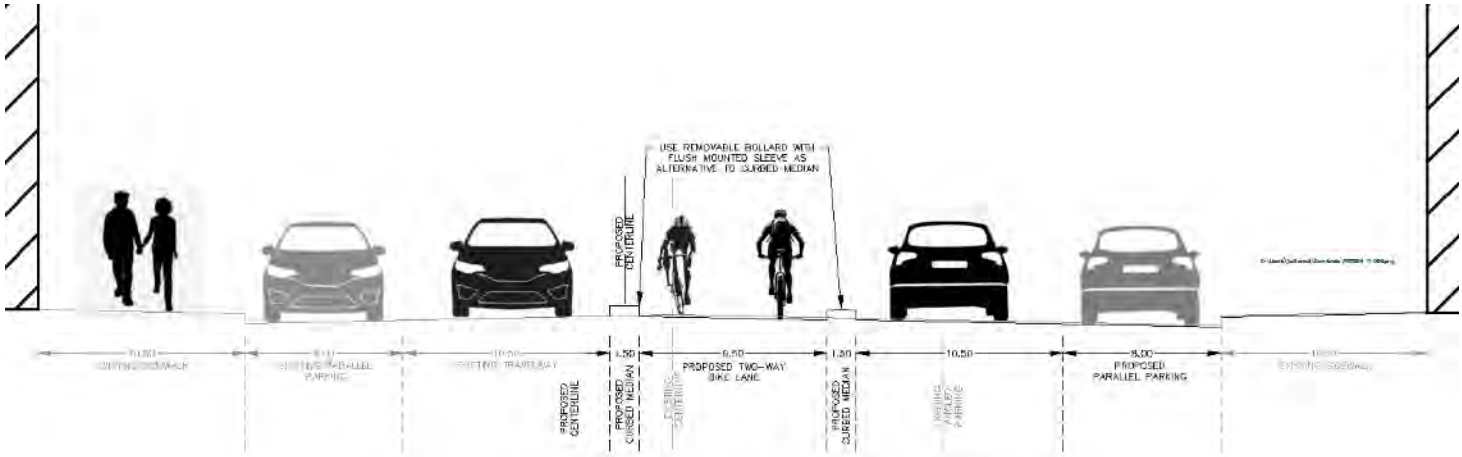


ONE-WAY TRAFFIC WITH TWO-WAY CENTER BIKE LANE TYPICAL SECTION
CENTRAL STREET

Alternative C: Two-way Traffic with Two-way Separated/Protected Bike Lanes

This design was considered as an alternative with two-way traffic, to conserve road width while still implementing safe bike lanes. Instead of having a single bike lane on either side of the roadway, this configuration combined both bike lanes into one center two-way bike lane with a separator between the bike lanes and the travel lanes. This design would allow each bike lane to be narrowed from 5 to 4 feet, with a raised median separating the two bike lanes. The 2 feet of saved roadway width would be applied back to the travel lanes and on-street parallel parking stalls.

While this offers a safe alternative, cyclists would have difficulty interacting at intersections and would make it difficult for cyclists to enter the bike lanes from parts of Bangor without existing bike lanes. This design would need to be more widely developed throughout the rest of Bangor for it to be easily maneuverable for bikers. While this design conserved the overall footprint of the bike lanes, it would be anomalous to implement in the heart of Bangor where there are many intersections to maneuver, and no existing bike lanes entering downtown from other parts of Bangor.



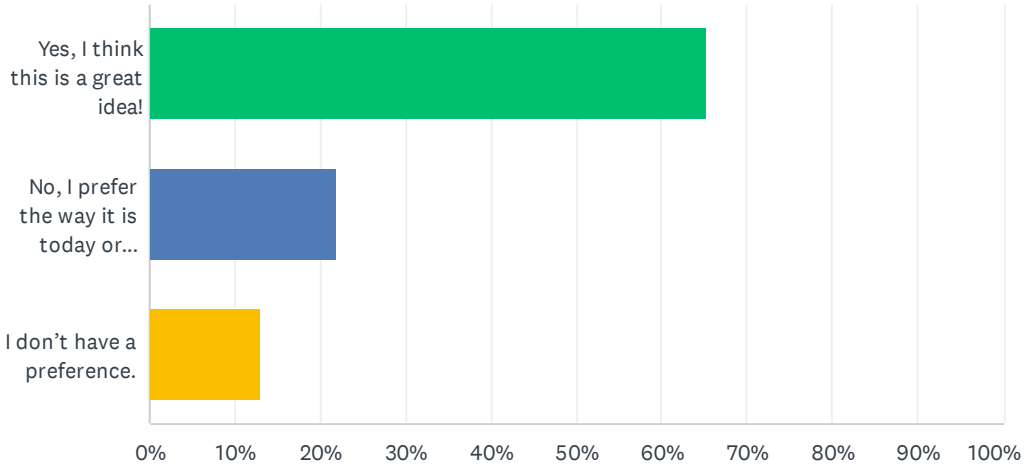
TWO-WAY TRAFFIC WITH TWO-WAY CENTER BIKE LANE TYPICAL SECTION
CENTRAL STREET

APPENDIX C

PUBLIC ENGAGMENT SURVEY RESULTS

Q1 Do you agree with the proposed improvements at the Center Street x Somerset Street intersection?

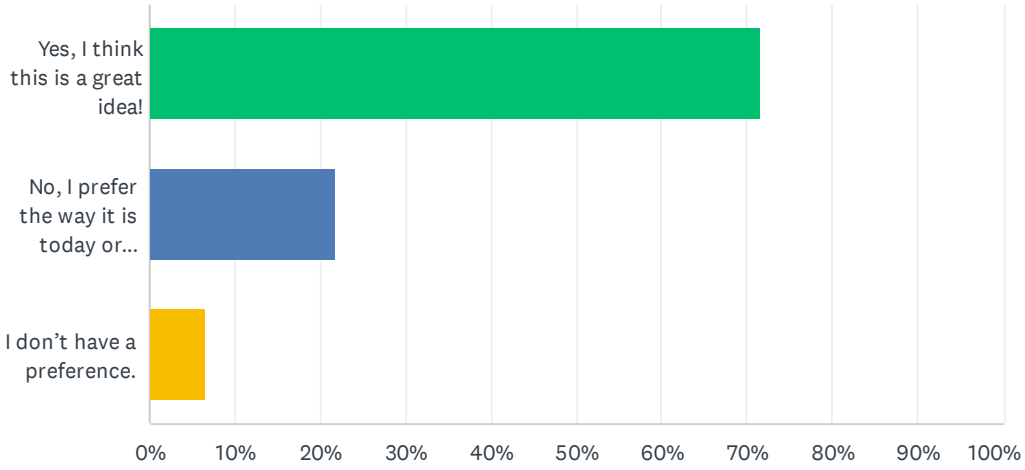
Answered: 333 Skipped: 6



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	65.17%	217
No, I prefer the way it is today or another alternative.	21.92%	73
I don't have a preference.	12.91%	43
TOTAL		333

Q2 Do you agree with the proposed improvements at the Center Street x Harlow Street x Central Street intersection?

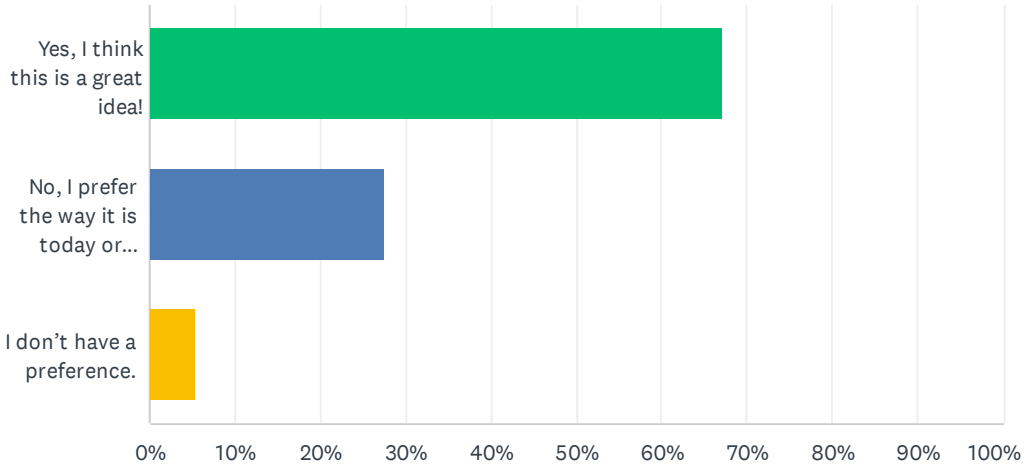
Answered: 331 Skipped: 8



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	71.60%	237
No, I prefer the way it is today or another alternative.	21.75%	72
I don't have a preference.	6.65%	22
TOTAL		331

Q3 Do you agree with the proposed reconfiguration of parking at City Hall and on Harlow Street?

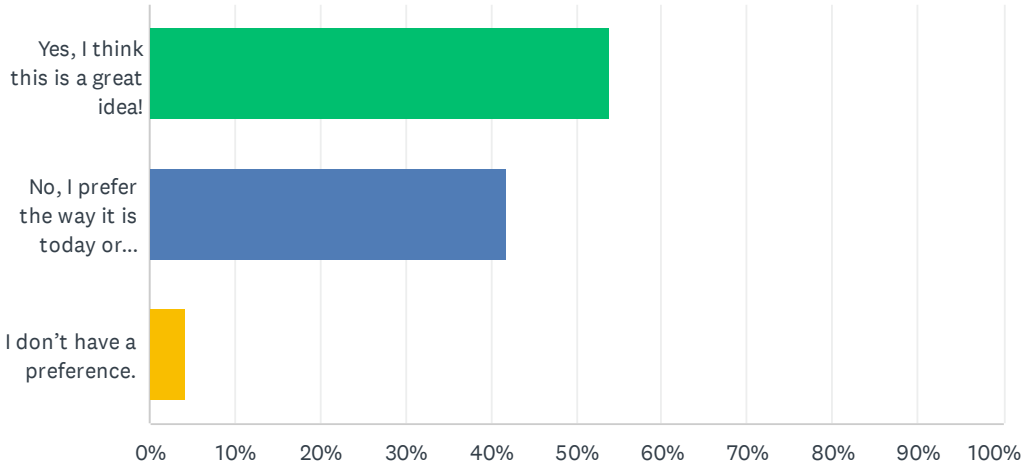
Answered: 334 Skipped: 5



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	67.07%	224
No, I prefer the way it is today or another alternative.	27.54%	92
I don't have a preference.	5.39%	18
TOTAL		334

Q4 Do you agree with the proposed changes to parking and addition of bike lanes to Harlow, Central, and State Streets?

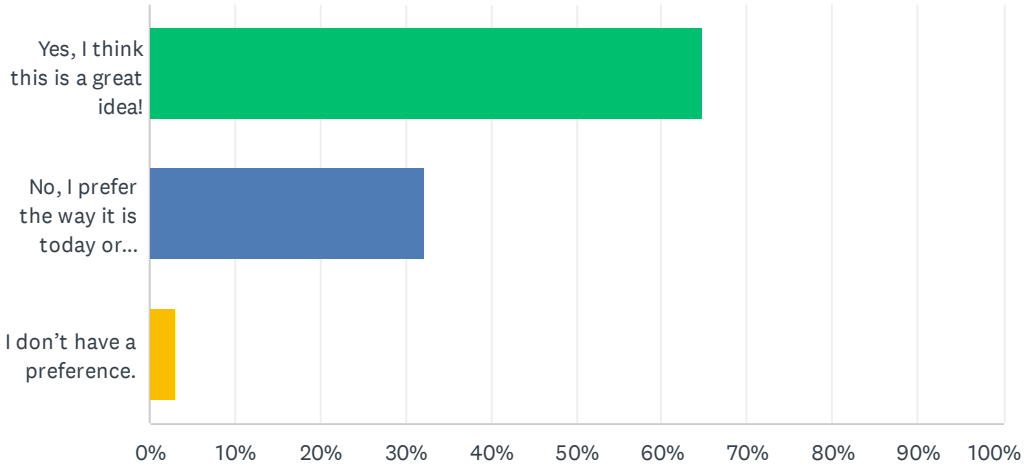
Answered: 335 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	54.03%	181
No, I prefer the way it is today or another alternative.	41.79%	140
I don't have a preference.	4.18%	14
TOTAL		335

Q5 Do you agree with the proposed expanded sidewalk / curb bump-out and the addition of a speed table as traffic calming measures on Hammond Street?

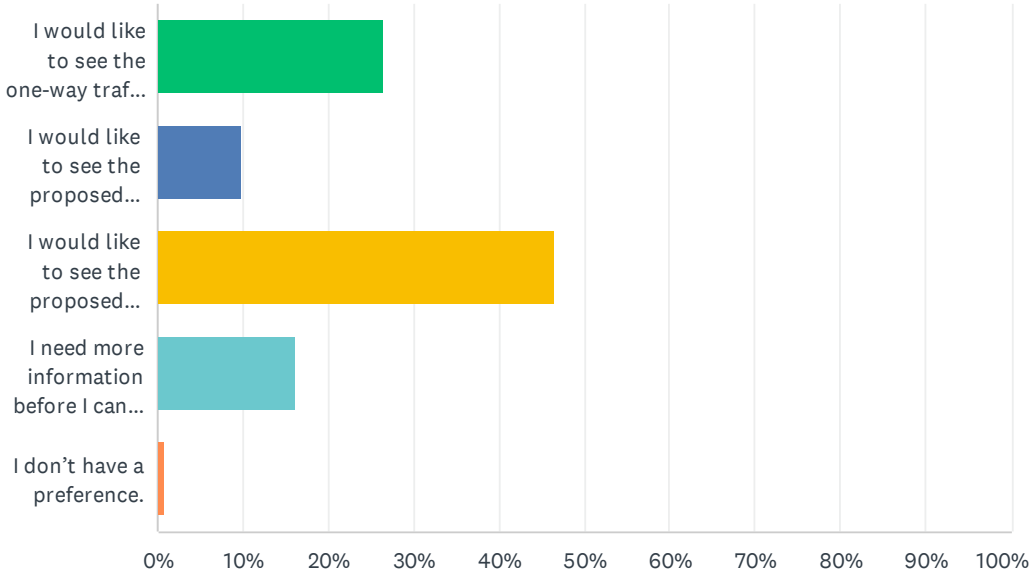
Answered: 335 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	64.78%	217
No, I prefer the way it is today or another alternative.	32.24%	108
I don't have a preference.	2.99%	10
TOTAL		335

Q6 Which traffic pattern do you prefer on Harlow / Central / State Street?

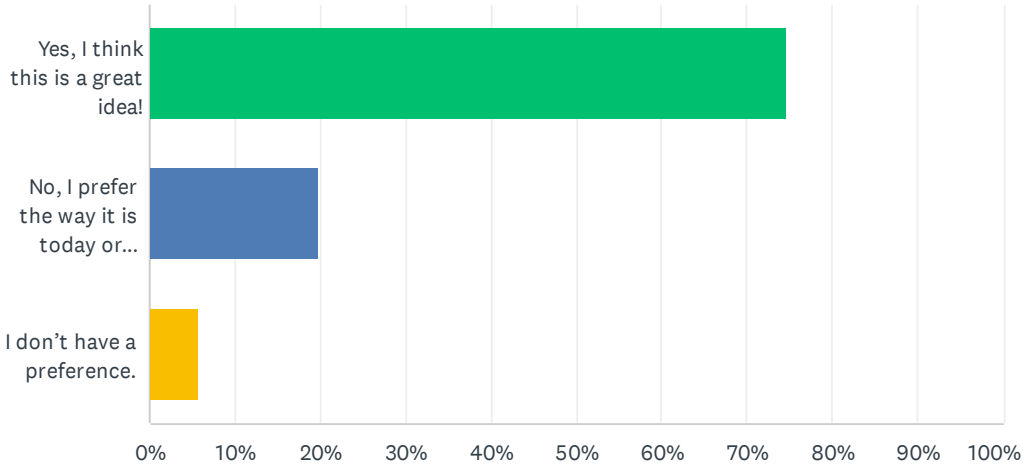
Answered: 333 Skipped: 6



ANSWER CHOICES	RESPONSES	
I would like to see the one-way traffic pattern maintained, with proposed intersection and streetscape improvements (Option A).	26.43%	88
I would like to see the proposed two-way traffic pattern with signalized intersections (Option B).	9.91%	33
I would like to see the proposed two-way traffic pattern with roundabouts (Option C).	46.55%	155
I need more information before I can decide.	16.22%	54
I don't have a preference.	0.90%	3
TOTAL		333

Q7 Do you agree with the recommendation to reduce the roadway and parking area between State Street and Washington Street to develop a linear park and trail on the west side of the Kenduskeag Stream?

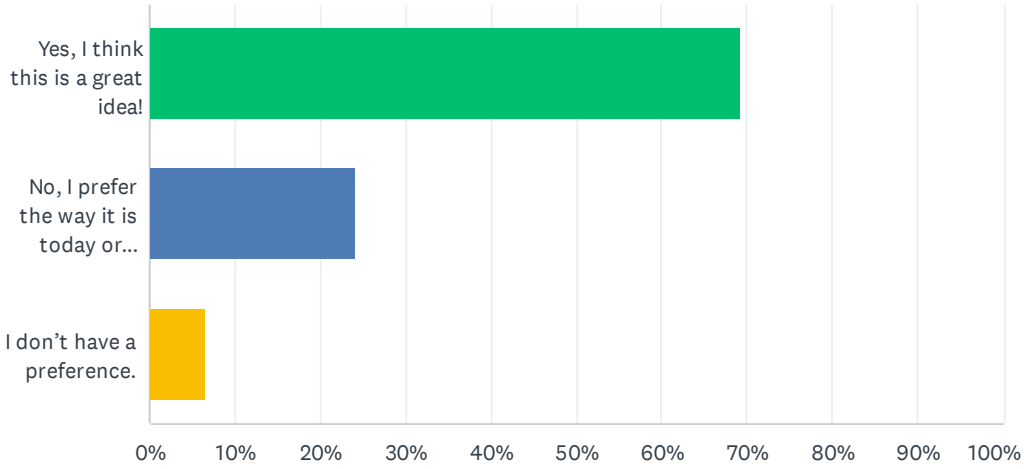
Answered: 334 Skipped: 5



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	74.55%	249
No, I prefer the way it is today or another alternative.	19.76%	66
I don't have a preference.	5.69%	19
TOTAL		334

Q8 Do you agree with the elimination of a traditional roadway on Broad Street in favor of a shared plaza that would allow both pedestrian and vehicle access?

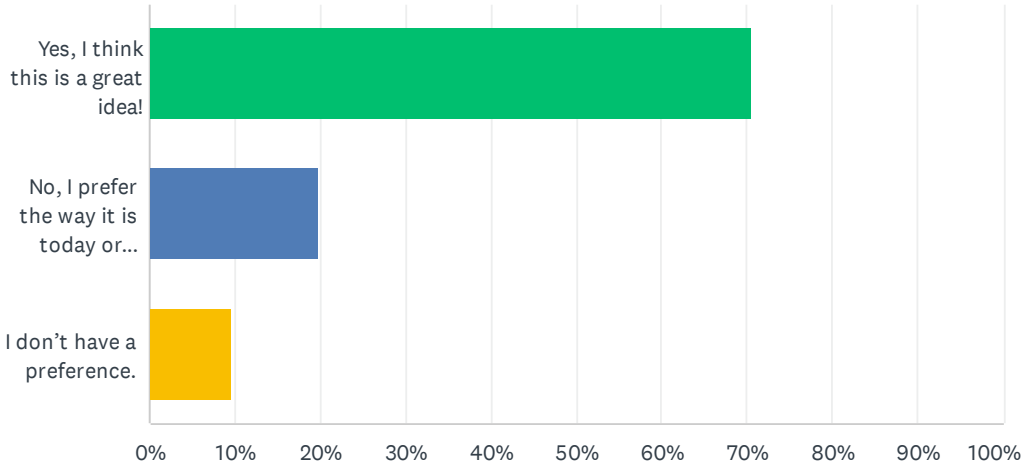
Answered: 336 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	69.35%	233
No, I prefer the way it is today or another alternative.	24.11%	81
I don't have a preference.	6.55%	22
TOTAL		336

Q9 Do you agree with the elimination of the vehicular traffic signal at the intersection of Main Street and Broad Street in favor of a crosswalk with a pedestrian signal (RRFB)?

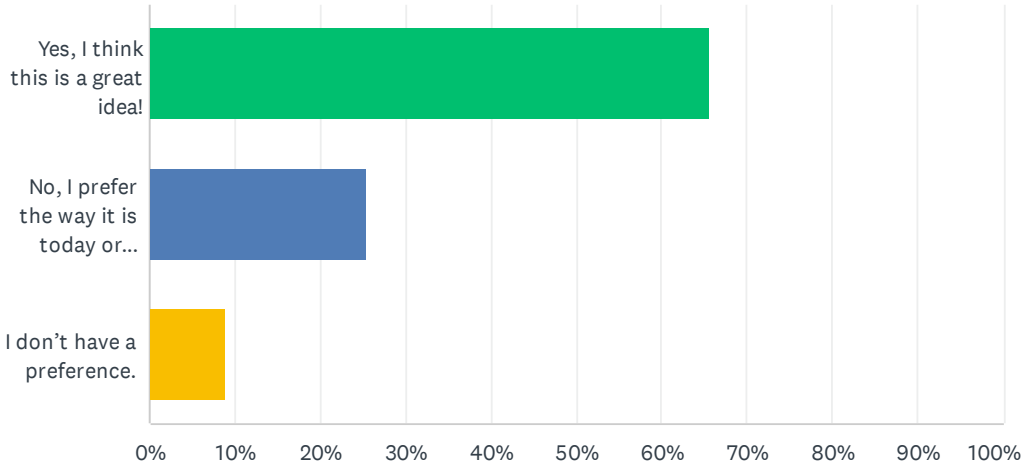
Answered: 334 Skipped: 5



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	70.66%	236
No, I prefer the way it is today or another alternative.	19.76%	66
I don't have a preference.	9.58%	32
TOTAL		334

Q10 Do you agree with the proposed roundabout at the Broad Street x Washington Street intersection?

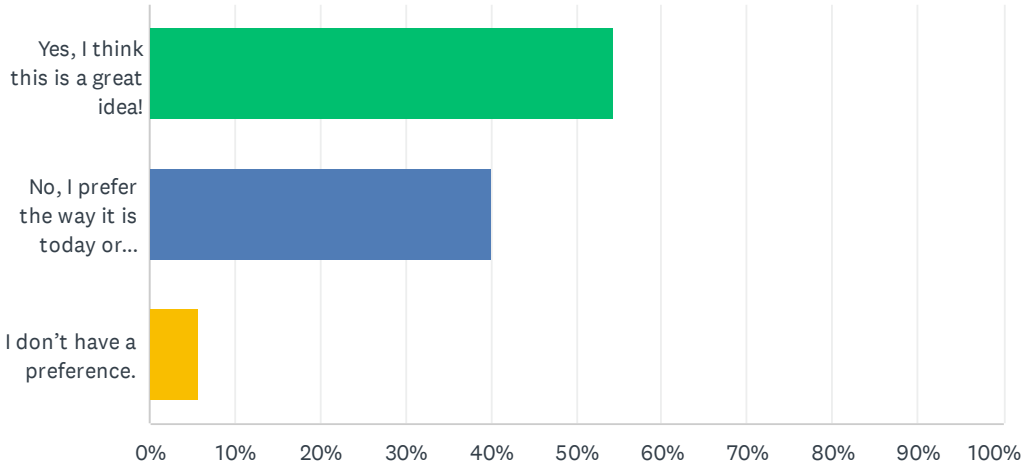
Answered: 338 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	65.68%	222
No, I prefer the way it is today or another alternative.	25.44%	86
I don't have a preference.	8.88%	30
TOTAL		338

Q11 Do you agree with replacing angled parking with parallel parking and bike lanes on Main Street between Hammond Street and Water Street?

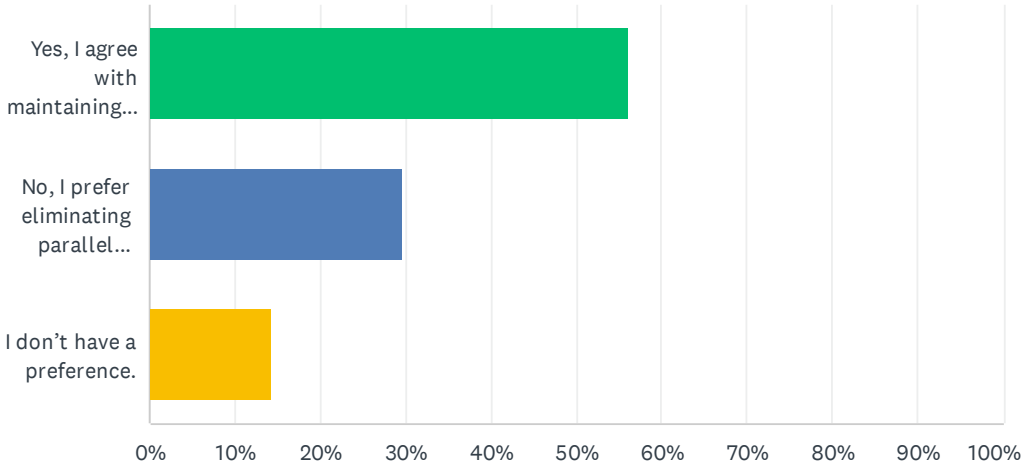
Answered: 335 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes, I think this is a great idea!	54.33%	182
No, I prefer the way it is today or another alternative.	40.00%	134
I don't have a preference.	5.67%	19
TOTAL		335

Q12 Do you agree with keeping on-street parking on Main Street (between Water Street and Union Street) and the use of a shared bike/travel lane?

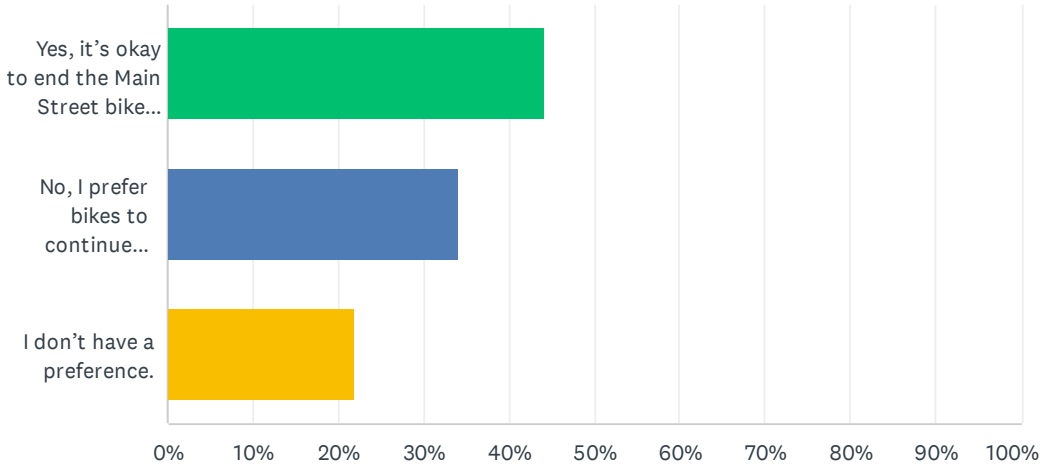
Answered: 335 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes, I agree with maintaining parallel parking with no bike lanes on this section of Main Street.	56.12%	188
No, I prefer eliminating parallel parking to continue bike lanes through this section of Main Street.	29.55%	99
I don't have a preference.	14.33%	48
TOTAL		335

Q13 Do you agree that Cedar Street should serve as the end point for the Main Street bike lane that services the downtown core?

Answered: 329 Skipped: 10



ANSWER CHOICES	RESPONSES	
Yes, it's okay to end the Main Street bike lanes at Cedar Street.	44.07%	145
No, I prefer bikes to continue further south on Main Street.	34.04%	112
I don't have a preference.	21.88%	72
TOTAL		329

APPENDIX D

MAINEDOT CRASH SUMMARY REPORT & COLLISION DIAGRAMS

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Bangor
Downtown Area (Center St-Park St-Harlow St-Franklin St-Central St-Hammond St-State St-Exchange St-York St-Kenduskeag Plaza East-Main St-Broad St-Broad St Ext-Merchants Plaza-Water St-Washington St-Kenduskeag Plaza West-Union St)

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: **1910045**	Start Node: **38491**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **38493**	End Offset: **0**	☐ **Exclude Last Node**
Route: **1910045**	Start Node: **39027**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **38491**	End Offset: **0**	☑ **Exclude Last Node**
Route: **3210992**	Start Node: **63331**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **38491**	End Offset: **0**	☑ **Exclude Last Node**
Route: **1910131**	Start Node: **73388**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **38511**	End Offset: **0**	☐ **Exclude Last Node**
Route: **1910131**	Start Node: **39027**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **73388**	End Offset: **0**	☑ **Exclude Last Node**
Route: **1910131**	Start Node: **73387**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **39027**	End Offset: **0**	☑ **Exclude Last Node**
Route: **3210735**	Start Node: **73386**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **73388**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0002W**	Start Node: **39804**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **73387**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0002W**	Start Node: **73387**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **73386**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0002W**	Start Node: **73386**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **39802**	End Offset: **0**	☐ **Exclude Last Node**
Route: **1910109**	Start Node: **39028**	Start Offset: **0**	☑ **Exclude First Node**

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Bangor
Downtown Area (Center St-Park St-Harlow St-Franklin St-Central St-Hammond St-State St-Exchange St-York St-Kenduskeag Plaza East-Main St-Broad St-Broad St Ext-Merchants Plaza-Water St-Washington St-Kenduskeag Plaza West-Union St)

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

	End Node: **39801**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0002X**	Start Node: **41134**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **39802**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0002X**	Start Node: **39802**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **39803**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0002X**	Start Node: **39803**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **39804**	End Offset: **0**	☑ **Exclude Last Node**
Route: **3201375**	Start Node: **39804**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **39644**	End Offset: **0**	☐ **Exclude Last Node**
Route: **1910314**	Start Node: **39644**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **40156**	End Offset: **0**	☐ **Exclude Last Node**
Route: **3201395**	Start Node: **40156**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **38461**	End Offset: **0**	☐ **Exclude Last Node**
Route: **3201377**	Start Node: **39627**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **39802**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0001A**	Start Node: **39625**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **39627**	End Offset: **0**	☑ **Exclude Last Node**
Route: **001AS**	Start Node: **71370**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **71369**	End Offset: **0**	☑ **Exclude Last Node**
Route: **001AS**	Start Node: **71368**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **63633**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☐ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☐ **1320 Summary**

REPORT DESCRIPTION

Bangor
Downtown Area (Center St-Park St-Harlow St-Franklin St-Central St-Hammond St-State St-Exchange St-York St-Kenduskeag Plaza East-Main St-Broad St-Broad St Ext-Merchants Plaza-Water St-Washington St-Kenduskeag Plaza West-Union St)

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: **1910282**	Start Node: **39629**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **38258**	End Offset: **0**	☐ **Exclude Last Node**
Route: **1910380**	Start Node: **41577**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **41596**	End Offset: **0**	☐ **Exclude Last Node**
Route: **1910223**	Start Node: **41595**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **41596**	End Offset: **0**	☑ **Exclude Last Node**
Route: **1910392**	Start Node: **37852**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **40636**	End Offset: **0**	☑ **Exclude Last Node**
Route: **1910298**	Start Node: **38766**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **37852**	End Offset: **0**	☑ **Exclude Last Node**
Route: **1910030**	Start Node: **37852**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **39638**	End Offset: **0**	☐ **Exclude Last Node**
Route: **1910297**	Start Node: **39638**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **39639**	End Offset: **0**	☐ **Exclude Last Node**
Route: **3201395**	Start Node: **39639**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **62984**	End Offset: **0**	☐ **Exclude Last Node**

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
38491	1910045 - 0.15	Int of CENTER ST PARK ST SOMERSET ST	2	2	0	0	1	1	0	100.0	0.755	0.88	0.53	1.68
												Statewide Crash Rate:	0.13	
38493	1910045 - 0.18	Int of CENTER ST, SPRING ST	2	0	0	0	0	0	0	0.0	0.840	0.00	0.52	0.00
												Statewide Crash Rate:	0.13	
A39027	1910045 - 0	Int of CENTER ST HARLOW ST	9	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.71	
38509	1910045 - 0.11	Int of CENTER ST PROSPECT ST	2	0	0	0	0	0	0	0.0	0.229	0.00	0.52	0.00
												Statewide Crash Rate:	0.13	
38490	3210992 - 0.12	Int of PARK ST PENOBSCOT ST	2	0	0	0	0	0	0	0.0	0.988	0.00	0.50	0.00
												Statewide Crash Rate:	0.13	
39028	1910131 - 0.08	Int of FRANKLIN ST HARLOW ST	2	3	0	0	0	0	3	0.0	2.903	0.34	0.39	0.00
												Statewide Crash Rate:	0.13	
38511	1910131 - 0.13	Non Int HARLOW ST	2	0	0	0	0	0	0	0.0	2.439	0.00	0.41	0.00
												Statewide Crash Rate:	0.13	
A73388	1910131 - 0.02	Int of CENTRAL ST HARLOW ST	9	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.71	
P73387	0002W - 0.45	Int of CENTRAL ST HARLOW ST	9	2	0	0	0	0	2	0.0	5.504	0.12	1.21	0.00
												Statewide Crash Rate:	0.71	
39804	0002W - 0.36	Int of EXCHANGE ST HARLOW ST STATE ST	9	14	0	0	0	1	13	7.1	4.586	1.02	1.26	0.81
												Statewide Crash Rate:	0.71	
63331	0002W - 0.39	Int of HARLOW ST RD INV 3201491	2	0	0	0	0	0	0	0.0	4.412	0.00	0.39	0.00
												Statewide Crash Rate:	0.15	
39802	0002W - 0.59	Int of CENTRAL ST HAMMOND ST MAIN ST	9	9	0	0	1	1	7	22.2	4.779	0.63	1.25	0.50
												Statewide Crash Rate:	0.71	
A73386	0002W - 0.46	Non Int CENTRAL ST	9	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.71	
P39801	0002X - 143.92	Int of FRANKLIN ST HAMMOND ST	2	1	0	0	0	0	1	0.0	2.821	0.12	0.43	0.00
												Statewide Crash Rate:	0.15	
A38763	0002X - 143.91	Int of COLUMBIA ST HAMMOND ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.15	
41134	0002X - 143.86	Int of COURT ST HAMMOND ST	2	1	0	0	0	1	0	100.0	3.143	0.11	0.42	0.00
												Statewide Crash Rate:	0.15	
39803	0002X - 144.02	Int of HAMMOND ST STATE ST	2	1	0	0	0	1	0	100.0	2.546	0.13	0.45	0.00
												Statewide Crash Rate:	0.15	
39644	3201375 - 0.06	Int of EXCHANGE ST YORK ST	2	3	0	0	0	0	3	0.0	1.610	0.62	0.45	1.38
												Statewide Crash Rate:	0.13	
40156	1910314 - 0.52	Int of KENDUSKEAG PLZ E YORK ST	2	0	0	0	0	0	0	0.0	0.247	0.00	0.53	0.00
												Statewide Crash Rate:	0.13	
38461	3201395 - 0.29	Int of HANCOCK ST KENDUSKEAG PLZ E	2	0	0	0	0	0	0	0.0	0.089	0.00	0.06	0.00
												Statewide Crash Rate:	0.13	
39627	3201377 - 0	Int of CEDAR ST MAIN ST	9	9	0	1	1	1	6	33.3	7.018	0.43	1.16	0.37
												Statewide Crash Rate:	0.71	
39631	3201377 - 0.24	Int of CROSS ST MAIN ST	2	1	0	0	1	0	0	100.0	3.032	0.11	0.43	0.00
												Statewide Crash Rate:	0.15	

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
41577	3201377 - 0.31	Int of BROAD ST MAIN ST	9	3	0	0	0	0	3	0.0	3.027	0.33	1.38	0.00
												Statewide Crash Rate:	0.71	
A38766	3201377 - 0.21	Int of MAIN ST WATER ST	9	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.71	
P39630	3201377 - 0.20	Int of MAIN ST MIDDLE ST	9	3	0	0	1	1	1	66.7	4.150	0.24	1.29	0.00
												Statewide Crash Rate:	0.71	
39629	3201377 - 0.14	Int of MAIN ST UNION ST	9	37	0	1	6	8	22	40.5	6.245	1.98	1.18	1.67
												Statewide Crash Rate:	0.71	
39628	3201377 - 0.08	Int of MAIN ST MAY ST	2	0	0	0	0	0	0	0.0	2.702	0.00	0.44	0.00
												Statewide Crash Rate:	0.15	
38764	3201377 - 0.17	Non-Int MAIN ST	2	0	0	0	0	0	0	0.0	3.361	0.00	0.41	0.00
												Statewide Crash Rate:	0.15	
39625	0001A - 38.44	Int of MAIN ST RAILROAD ST	9	5	0	0	0	1	4	20.0	5.490	0.30	1.21	0.00
												Statewide Crash Rate:	0.71	
71370	0001A - 38.54	Non Int MAIN ST	2	0	0	0	0	0	0	0.0	5.245	0.00	0.33	0.00
												Statewide Crash Rate:	0.13	
71368	0001A - 38.50	Non Int MAIN ST	2	0	0	0	0	0	0	0.0	5.245	0.00	0.33	0.00
												Statewide Crash Rate:	0.13	
63633	0001A - 38.47	Int of BARKER ST MAIN ST	2	0	0	0	0	0	0	0.0	5.308	0.00	0.33	0.00
												Statewide Crash Rate:	0.13	
71369	0001A - 38.52	Non Int MAIN ST	2	0	0	0	0	0	0	0.0	5.245	0.00	0.33	0.00
												Statewide Crash Rate:	0.13	
38258	1910282 - 0.14	Int of HIGH ST UNION ST	2	5	0	0	0	0	5	0.0	3.467	0.48	0.37	1.30
												Statewide Crash Rate:	0.13	
P38260	1910282 - 0.10	Int of FIRST ST, UNION ST	2	5	0	0	0	0	5	0.0	4.014	0.42	0.36	1.17
												Statewide Crash Rate:	0.13	
A38761	1910282 - 0.11	Int of COLUMBIA ST UNION ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.13	
41596	1910380 - 0.03	Non Int BROAD ST	2	0	0	0	0	0	0	0.0	0.448	0.00	0.56	0.00
												Statewide Crash Rate:	0.13	
40636	1910223 - 0.03	Int of BROAD ST BROAD ST EXT MERCHANTS PLZ	2	0	0	0	0	0	0	0.0	0.933	0.00	0.51	0.00
												Statewide Crash Rate:	0.13	
37852	1910392 - 0	Int of BROAD ST BROAD ST EXT WATER ST	2	1	0	0	0	0	1	0.0	0.775	0.43	0.52	0.00
												Statewide Crash Rate:	0.13	
41595	1910298 - 0.04	Int of MERCHANTS PLZ WATER ST	2	0	0	0	0	0	0	0.0	1.667	0.00	0.45	0.00
												Statewide Crash Rate:	0.13	
39638	1910030 - 0.04	Int of BROAD ST INDEPENDENCE ST INDEPENDENT ST	9	5	0	0	2	2	1	80.0	3.355	0.50	1.34	0.00
												Statewide Crash Rate:	0.71	
39639	1910297 - 0.04	Int of INDEPENDENT ST KENDUSKEAG PLZ W	2	2	0	0	0	1	1	50.0	2.954	0.23	0.39	0.00
												Statewide Crash Rate:	0.13	
41555	3201395 - 0.04	Int of KENDUSKEAG PLZ W WATER ST	2	0	0	0	0	0	0	0.0	0.397	0.00	0.56	0.00
												Statewide Crash Rate:	0.13	
62984	3201395 - 0.18	Int of KENDUSKEAG PLZ E KENDUSKEAG PLZ W	2	0	0	0	0	0	0	0.0	0.247	0.00	0.53	0.00
												Statewide Crash Rate:	0.13	

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
Study Years:	3.00	**NODE TOTALS:**		112	0	2	13	19	78	30.4	112.216	0.33	0.45	0.75

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
38491	38493	3110671	0 - 0.03	1910045 - 0.15	0.03	2	1	0	0	0	0	0	0.0	0.00026	1304.82	742.22	1.76
Int of CENTER ST PARK ST SOMERSET ST				RD INV 19 10045											Statewide Crash Rate: 172.50		
38509	39027	3110681	0 - 0.11	1910045 - 0	0.11	2	1	0	0	0	0	1	0.0	0.00025	1341.23	740.94	1.81
Int of CENTER ST PROSPECT ST				RD INV 19 10045											Statewide Crash Rate: 172.50		
38491	38509	3110672	0 - 0.04	1910045 - 0.11	0.04	2	0	0	0	0	0	0	0.0	0.00005	0.00	-250.37	0.00
Int of CENTER ST PARK ST SOMERSET ST				RD INV 19 10045											Statewide Crash Rate: 172.50		
38490	63331	5097481	0 - 0.12	3210992 - 0	0.12	2	0	0	0	0	0	0	0.0	0.00119	0.00	599.21	0.00
Int of PARK ST PENOBSCOT ST				RD INV 3210992											Statewide Crash Rate: 172.50		
38490	38491	3130655	0 - 0.09	3210992 - 0.12	0.09	2	1	0	0	1	0	0	100.0	0.00085	392.24	646.44	0.00
Int of PARK ST PENOBSCOT ST				RD INV 3210992											Statewide Crash Rate: 172.50		
73388	39028	4602396	0 - 0.06	1910131 - 0.02	0.06	2	8	0	0	0	0	7	0.0	0.00131	2036.21	585.00	3.48
Int of CENTRAL ST HARLOW ST				RD INV 19 10131											Statewide Crash Rate: 172.50		
38511	39028	4602710	0 - 0.05	1910131 - 0.08	0.05	2	1	0	0	0	0	1	0.0	0.00122	273.34	595.19	0.00
Non Int HARLOW ST				RD INV 19 10131											Statewide Crash Rate: 172.50		
39027	73388	4602395	0 - 0.01	1910131 - 0.01	0.01	2	0	0	0	0	0	0	0.0	0.00015	0.00	651.71	0.00
Int of CENTER ST HARLOW ST				RD INV 19 10131											Statewide Crash Rate: 172.50		
39027	73387	4602393	0 - 0.01	1910131 - 0	0.01	2	0	0	0	0	0	0	0.0	0.00027	0.00	897.95	0.00
Int of CENTER ST HARLOW ST				RD INV 19 10131											Statewide Crash Rate: 208.62		
73386	73388	4631170	0 - 0.01	3210735 - 0	0.01	2	0	0	0	0	0	0	0.0	0.00007	0.00	402.11	0.00
Non Int CENTRAL ST				RD INV 3210735											Statewide Crash Rate: 208.62		
63331	39804	5111479	0 - 0.03	0002W - 0.36	0.03	2	3	0	0	0	0	2	0.0	0.00103	973.40	716.59	1.36
Int of HARLOW ST RD INV 3201491				US 2W											Statewide Crash Rate: 208.62		
73387	63331	4602389	0 - 0.06	0002W - 0.39	0.06	2	5	0	0	0	1	4	20.0	0.00265	629.53	563.16	1.12
Int of CENTRAL ST HARLOW ST				US 2W											Statewide Crash Rate: 208.62		
73387	73386	4602391	0 - 0.01	0002W - 0.45	0.01	2	0	0	0	0	0	0	0.0	0.00017	0.00	872.19	0.00
Int of CENTRAL ST HARLOW ST				US 2W											Statewide Crash Rate: 208.62		
73386	39802	4602387	0 - 0.13	0002W - 0.46	0.13	2	10	0	0	0	0	9	0.0	0.00308	1083.09	541.68	2.00
Non Int CENTRAL ST				US 2W											Statewide Crash Rate: 208.62		
39028	39801	219195	0 - 0.18	1910109 - 0	0.18	2	6	0	0	0	1	5	16.7	0.00213	938.68	913.53	1.03
Int of FRANKLIN ST HARLOW ST				RD INV 19 10109											Statewide Crash Rate: 371.08		
38763	41134	3130142	0 - 0.05	0002X - 143.86	0.05	2	3	0	0	0	0	3	0.0	0.00130	771.54	676.71	1.14
Int of COLUMBIA ST HAMMOND ST				US 2											Statewide Crash Rate: 208.62		
38763	39801	3122580	0 - 0.01	0002X - 143.91	0.01	2	0	0	0	0	0	0	0.0	0.00028	0.00	897.03	0.00
Int of COLUMBIA ST HAMMOND ST				US 2											Statewide Crash Rate: 208.62		
39801	39802	3116211	0 - 0.04	0002X - 143.92	0.04	2	0	0	0	0	0	0	0.0	0.00075	0.00	771.68	0.00
Int of FRANKLIN ST HAMMOND ST				US 2											Statewide Crash Rate: 208.62		
39802	39803	4630538	0 - 0.06	0002X - 143.96	0.06	2	4	0	0	0	0	4	0.0	0.00153	873.00	649.16	1.34
Int of CENTRAL ST HAMMOND ST MAIN ST				US 2											Statewide Crash Rate: 208.62		
39803	39804	4630539	0 - 0.06	0002X - 144.02	0.06	2	14	0	0	2	1	11	21.4	0.00153	3055.49	649.16	4.71
Int of HAMMOND ST STATE ST				US 2											Statewide Crash Rate: 208.62		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
39644	39804	220013	0 - 0.06	3201375 - 0	0.06	2	1	0	0	0	0	1	0.0	0.00072	461.23	668.49	0.00
Int of EXCHANGE ST YORK ST				RD INV 32 01375											Statewide Crash Rate: 172.50		
39644	40156	5077858	0 - 0.04	1910314 - 0.48	0.04	2	0	0	0	0	0	0	0.0	0.00010	0.00	1576.91	0.00
Int of EXCHANGE ST YORK ST				RD INV 19 10314											Statewide Crash Rate: 371.08		
40156	38461	5077857	0 - 0.07	3201395 - 0.22	0.07	2	0	0	0	0	0	0	0.0	0.00004	0.00	751.65	0.00
Int of KENDUSKEAG PLZ E YORK ST				RD INV 3201395											Statewide Crash Rate: 371.08		
39627	39628	4033678	0 - 0.08	3201377 - 0	0.08	2	2	0	0	0	0	2	0.0	0.00213	313.18	595.92	0.00
Int of CEDAR ST MAIN ST				RD INV 3201377											Statewide Crash Rate: 208.62		
39628	39629	4033680	0 - 0.06	3201377 - 0.08	0.06	2	1	0	0	0	0	1	0.0	0.00157	212.91	645.06	0.00
Int of MAIN ST MAY ST				RD INV 3201377											Statewide Crash Rate: 208.62		
38764	39629	3110709	0 - 0.03	3201377 - 0.14	0.03	2	2	0	0	0	0	2	0.0	0.00087	770.18	746.21	1.03
Non-Int MAIN ST				RD INV 3201377											Statewide Crash Rate: 208.62		
38764	39630	3110710	0 - 0.03	3201377 - 0.17	0.03	2	4	0	0	0	0	3	0.0	0.00115	1158.13	696.95	1.66
Non-Int MAIN ST				RD INV 3201377											Statewide Crash Rate: 208.62		
38766	39630	3118753	0 - 0.01	3201377 - 0.20	0.01	2	0	0	0	0	0	0	0.0	0.00027	0.00	898.85	0.00
Int of MAIN ST WATER ST				RD INV 3201377											Statewide Crash Rate: 208.62		
38766	39631	3129441	0 - 0.03	3201377 - 0.21	0.03	2	2	0	0	0	0	2	0.0	0.00089	748.59	741.30	1.01
Int of MAIN ST WATER ST				RD INV 3201377											Statewide Crash Rate: 208.62		
39631	41577	3123566	0 - 0.07	3201377 - 0.24	0.07	2	10	0	0	2	1	6	33.3	0.00217	1538.48	593.19	2.59
Int of CROSS ST MAIN ST				RD INV 3201377											Statewide Crash Rate: 208.62		
39802	41577	3111065	0 - 0.03	3201377 - 0.31	0.03	2	0	0	0	0	0	0	0.0	0.00089	0.00	741.86	0.00
Int of CENTRAL ST HAMMOND ST MAIN ST				RD INV 3201377											Statewide Crash Rate: 208.62		
39625	63633	4033664	0 - 0.03	0001A - 38.44	0.03	2	0	0	0	0	0	0	0.0	0.00156	0.00	618.33	0.00
Int of MAIN ST RAILROAD ST				US 1A											Statewide Crash Rate: 196.98		
63633	71368	4033813	0 - 0.03	0001A - 38.47	0.03	2	0	0	0	0	0	0	0.0	0.00079	0.00	729.32	0.00
Int of BARKER ST MAIN ST				US 1A											Statewide Crash Rate: 196.98		
71368	71369	4033820	0 - 0.02	0001A - 38.50	0.02	2	1	0	0	0	0	1	0.0	0.00105	317.76	682.58	0.00
Non Int MAIN ST				US 1A											Statewide Crash Rate: 196.98		
71369	71370	4033824	0 - 0.02	0001A - 38.52	0.02	2	0	0	0	0	0	0	0.0	0.00052	0.00	790.65	0.00
Non Int MAIN ST				US 1A											Statewide Crash Rate: 196.98		
71370	39627	4033823	0 - 0.04	0001A - 38.54	0.04	2	2	0	0	0	0	2	0.0	0.00210	317.76	573.25	0.00
Non Int MAIN ST				US 1A											Statewide Crash Rate: 196.98		
71370	71369	4033832	0 - 0.02	001AS - 0.66	0.02	2	0	0	0	0	0	0	0.0	0.00052	0.00	790.65	0.00
Non Int MAIN ST				US 1AS											Statewide Crash Rate: 196.98		
71368	63633	4033833	0 - 0.03	001AS - 0.68	0.03	2	0	0	0	0	0	0	0.0	0.00079	0.00	729.32	0.00
Non Int MAIN ST				US 1AS											Statewide Crash Rate: 196.98		
38260	39629	3110646	0 - 0.05	1910282 - 0.05	0.05	2	2	0	0	1	0	1	50.0	0.00171	390.57	604.57	0.00
Int of FIRST ST, UNION ST				RD INV 19 10282											Statewide Crash Rate: 196.98		
38260	38761	217993	0 - 0.01	1910282 - 0.10	0.01	2	0	0	0	0	0	0	0.0	0.00046	0.00	808.47	0.00
Int of FIRST ST, UNION ST				RD INV 19 10282											Statewide Crash Rate: 196.98		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
38258	38761	3110645	0 - 0.03	1910282 - 0.11	0.03	2	1	0	0	0	0	1	0.0	0.00104	320.07	683.76	0.00
Int of HIGH ST UNION ST				RD INV 19 10282											Statewide Crash Rate: 196.98		
41577	41596	221851	0 - 0.03	1910380 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00013	0.00	1602.27	0.00
Int of BROAD ST MAIN ST				RD INV 19 10380											Statewide Crash Rate: 371.08		
40636	41595	221016	0 - 0.03	1910223 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00028	0.00	1488.09	0.00
Int of BROAD ST BROAD ST EXT MERCHANTS PLZ				RD INV 19 10223											Statewide Crash Rate: 371.08		
40636	41596	221017	0 - 0.06	1910223 - 0.03	0.06	2	4	0	0	0	0	2	0.0	0.00027	4957.88	1498.36	3.31
Int of BROAD ST BROAD ST EXT MERCHANTS PLZ				RD INV 19 10223											Statewide Crash Rate: 371.08		
37852	40636	217379	0 - 0.07	1910392 - 0	0.07	2	1	0	0	0	0	1	0.0	0.00034	982.40	1435.22	0.00
Int of BROAD ST BROAD ST EXT WATER ST				RD INV 19 10392											Statewide Crash Rate: 371.08		
38766	41595	5077855	0 - 0.04	1910298 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00030	0.00	1473.96	0.00
Int of MAIN ST WATER ST				RD INV 19 10298											Statewide Crash Rate: 371.08		
37852	41595	217381	0 - 0.05	1910298 - 0.04	0.05	2	3	0	0	0	1	2	33.3	0.00037	2736.99	1413.76	1.94
Int of BROAD ST BROAD ST EXT WATER ST				RD INV 19 10298											Statewide Crash Rate: 371.08		
37852	39638	5101567	0 - 0.04	1910030 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00028	0.00	1491.91	0.00
Int of BROAD ST BROAD ST EXT WATER ST				RD INV 19 10030											Statewide Crash Rate: 371.08		
39638	39639	3110975	0 - 0.04	1910297 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00110	0.00	675.05	0.00
Int of BROAD ST INDEPENDENCE ST INDEPENDENT ST				RD INV 19 10297											Statewide Crash Rate: 196.98		
39639	41555	2522725	0 - 0.04	3201395 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00014	0.00	1602.02	0.00
Int of INDEPENDENT ST KENDUSKEAG PLZ W				RD INV 3201395											Statewide Crash Rate: 371.08		
41555	62984	5077856	0 - 0.14	3201395 - 0.04	0.14	2	1	0	0	0	0	1	0.0	0.00044	754.12	1356.72	0.00
Int of KENDUSKEAG PLZ W WATER ST				RD INV 3201395											Statewide Crash Rate: 371.08		
Study Years: 3.00				**Section Totals:**	2.49		94	0	0	6	5	75	11.7	0.04501	696.11	318.02	2.19
				Grand Totals:	2.49		206	0	2	19	24	153	21.8	0.04501	1525.53	436.44	3.50

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
38491	38493	3110671	0 - 0.03	1910045 - 0.15	1	0	0	0	0	0	2022-17730	06/26/2022	0.17	
38509	39027	3110681	0 - 0.11	1910045 - 0	1	0	0	0	0	1	2023-4620	02/09/2023	0.02	PD
38491	38509	3110672	0 - 0.04	1910045 - 0.11	0	0	0	0	0	0				
38490	63331	5097481	0 - 0.12	3210992 - 0	0	0	0	0	0	0				
38490	38491	3130655	0 - 0.09	3210992 - 0.12	1	0	0	1	0	0	2021-34285	12/07/2021	0.18	B
73388	39028	4602396	0 - 0.06	1910131 - 0.02	8	0	0	0	0	7	2022-21791	08/03/2022	0.03	PD
											2023-28623	10/03/2023	0.04	PD
											2023-2681	01/27/2023	0.05	
											2023-4162	02/07/2023	0.05	PD
											2022-22534	08/10/2022	0.05	PD
											2021-7734	03/26/2021	0.06	PD
											2023-3496	02/01/2023	0.06	PD
											2021-9071	04/09/2021	0.07	PD
38511	39028	4602710	0 - 0.05	1910131 - 0.08	1	0	0	0	0	1	2022-30684	10/24/2022	0.10	PD
39027	73388	4602395	0 - 0.01	1910131 - 0.01	0	0	0	0	0	0				
39027	73387	4602393	0 - 0.01	1910131 - 0	0	0	0	0	0	0				
73386	73388	4631170	0 - 0.01	3210735 - 0	0	0	0	0	0	0				
63331	39804	5111479	0 - 0.03	0002W - 0.36	3	0	0	0	0	2	2022-8169	03/12/2022	0.38	
											2021-3039	02/04/2021	0.38	PD
											2023-25902	09/06/2023	0.38	PD
73387	63331	4602389	0 - 0.06	0002W - 0.39	5	0	0	0	1	4	2023-36939	12/09/2023	0.40	PD
											2021-16624	07/02/2021	0.40	PD
											2022-14968	06/01/2022	0.41	PD
											2023-12843	05/06/2023	0.42	C
											2022-26981	09/22/2022	0.42	PD
73387	73386	4602391	0 - 0.01	0002W - 0.45	0	0	0	0	0	0				

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
73386	39802	4602387	0 - 0.13	0002W - 0.46	10	0	0	0	0	9	2022-30540	10/21/2022	0.48	PD
											2021-28547	10/21/2021	0.52	PD
											2023-33789	11/17/2023	0.52	PD
											2023-27367	09/21/2023	0.52	PD
											2023-32093	11/03/2023	0.53	PD
											2021-23459	09/04/2021	0.54	PD
											2022-6865	02/19/2022	0.54	PD
											2023-1058	01/12/2023	0.55	
											2023-30333	09/09/2023	0.56	PD
											2023-27311	09/19/2023	0.56	PD
39028	39801	219195	0 - 0.18	1910109 - 0	6	0	0	0	1	5	2022-6182	02/18/2022	0.01	PD
											2023-19918	07/14/2023	0.02	C
											2022-39279	12/29/2022	0.02	PD
											2023-38588	12/21/2023	0.05	PD
											2022-38579	12/17/2022	0.06	PD
											2023-10293	04/03/2023	0.14	PD
38763	41134	3130142	0 - 0.05	0002X - 143.86	3	0	0	0	0	3	2022-11436	04/15/2022	143.88	PD
											2023-15729	06/05/2023	143.89	PD
											2021-26027	09/29/2021	143.90	PD
38763	39801	3122580	0 - 0.01	0002X - 143.91	0	0	0	0	0	0				
39801	39802	3116211	0 - 0.04	0002X - 143.92	0	0	0	0	0	0				
39802	39803	4630538	0 - 0.06	0002X - 143.96	4	0	0	0	0	4	2021-26265	10/01/2021	143.97	PD
											2021-28638	10/23/2021	143.99	PD
											2022-25317	08/26/2022	143.99	PD
											2021-32907	11/27/2021	144.01	PD

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
39803	39804	4630539	0 - 0.06	0002X - 144.02	14	0	0	2	1	11	2023-35861	12/02/2023	144.03	B
											2022-4939	02/11/2022	144.03	PD
											2023-2833	01/27/2023	144.03	PD
											2023-28081	09/28/2023	144.04	C
											2022-19791	07/15/2022	144.04	PD
											2022-9499	03/27/2022	144.04	PD
											2022-14809	05/13/2022	144.04	PD
											2021-27923	10/16/2021	144.04	PD
											2022-28471	10/06/2022	144.04	PD
											2023-29249	10/08/2023	144.04	PD
											2021-38613	03/05/2021	144.05	B
											2023-10297	04/04/2023	144.05	PD
											2023-36768	12/08/2023	144.06	PD
											2023-12577	05/03/2023	144.07	PD
39644	39804	220013	0 - 0.06	3201375 - 0	1	0	0	0	0	1	2021-8087	03/31/2021	0.05	PD
39644	40156	5077858	0 - 0.04	1910314 - 0.48	0	0	0	0	0	0				
40156	38461	5077857	0 - 0.07	3201395 - 0.22	0	0	0	0	0	0				
39627	39628	4033678	0 - 0.08	3201377 - 0	2	0	0	0	0	2	2021-13861	06/07/2021	0.01	PD
											2022-31604	11/01/2022	0.06	PD
39628	39629	4033680	0 - 0.06	3201377 - 0.08	1	0	0	0	0	1	2022-18943	07/07/2022	0.10	PD
38764	39629	3110709	0 - 0.03	3201377 - 0.14	2	0	0	0	0	2	2021-22593	08/26/2021	0.15	PD
											2021-8555	03/26/2021	0.16	PD
38764	39630	3110710	0 - 0.03	3201377 - 0.17	4	0	0	0	0	3	2022-34951	11/26/2022	0.18	
											2023-7031	03/04/2023	0.18	PD
											2023-39074	12/27/2023	0.19	PD
											2023-28060	09/26/2023	0.19	PD
38766	39630	3118753	0 - 0.01	3201377 - 0.20	0	0	0	0	0	0				
38766	39631	3129441	0 - 0.03	3201377 - 0.21	2	0	0	0	0	2	2021-10857	05/06/2021	0.23	PD
											2022-19790	07/15/2022	0.23	PD

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
39631	41577	3123566	0 - 0.07	3201377 - 0.24	10	0	0	2	1	6	2022-34146	11/20/2022	0.25	C
											2021-17857	07/14/2021	0.25	PD
											2022-15635	05/27/2022	0.27	
											2021-20113	08/02/2021	0.27	B
											2023-29075	10/08/2023	0.28	B
											2022-21322	07/30/2022	0.28	PD
											2023-20642	07/20/2023	0.29	PD
											2021-15229	06/20/2021	0.29	PD
											2021-18075	07/16/2021	0.29	PD
											2022-968	01/06/2022	0.29	PD
39802	41577	3111065	0 - 0.03	3201377 - 0.31	0	0	0	0	0	0				
39625	63633	4033664	0 - 0.03	0001A - 38.44	0	0	0	0	0	0				
63633	71368	4033813	0 - 0.03	0001A - 38.47	0	0	0	0	0	0				
71368	71369	4033820	0 - 0.02	0001A - 38.50	1	0	0	0	0	1	2022-30219	10/17/2022	38.51	PD
71369	71370	4033824	0 - 0.02	0001A - 38.52	0	0	0	0	0	0				
71370	39627	4033823	0 - 0.04	0001A - 38.54	2	0	0	0	0	2	2023-279	01/05/2023	38.56	PD
											2022-26640	09/17/2022	38.57	PD
71370	71369	4033832	0 - 0.02	001AS - 0.66	0	0	0	0	0	0				
71368	63633	4033833	0 - 0.03	001AS - 0.68	0	0	0	0	0	0				
38260	39629	3110646	0 - 0.05	1910282 - 0.05	2	0	0	1	0	1	2023-1238	01/15/2023	0.07	PD
											2022-10168	04/04/2022	0.08	B
38260	38761	217993	0 - 0.01	1910282 - 0.10	0	0	0	0	0	0				
38258	38761	3110645	0 - 0.03	1910282 - 0.11	1	0	0	0	0	1	2021-22301	08/24/2021	0.13	PD
41577	41596	221851	0 - 0.03	1910380 - 0	0	0	0	0	0	0				
40636	41595	221016	0 - 0.03	1910223 - 0	0	0	0	0	0	0				
40636	41596	221017	0 - 0.06	1910223 - 0.03	4	0	0	0	0	2	2023-10538	04/05/2023	0.05	PD
											2021-26264	10/01/2021	0.08	
											2023-12578	05/03/2023	0.08	
											2022-542	01/08/2022	0.08	PD
37852	40636	217379	0 - 0.07	1910392 - 0	1	0	0	0	0	1	2023-32539	11/07/2023	0.02	PD
38766	41595	5077855	0 - 0.04	1910298 - 0	0	0	0	0	0	0				
37852	41595	217381	0 - 0.05	1910298 - 0.04	3	0	0	0	1	2	2021-19604	07/30/2021	0.05	PD
											2023-32842	11/09/2023	0.06	C
											2021-31835	11/17/2021	0.06	PD
37852	39638	5101567	0 - 0.04	1910030 - 0	0	0	0	0	0	0				

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
39638	39639	3110975	0 - 0.04	1910297 - 0	0	0	0	0	0	0				
39639	41555	2522725	0 - 0.04	3201395 - 0	0	0	0	0	0	0				
41555	62984	5077856	0 - 0.14	3201395 - 0.04	1	0	0	0	0	1	2021-12105	05/19/2021	0.14	PD
				Totals:	94	0	0	6	5	75				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												Hour of Day PM												
Day Of Week	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Un**	**Tot**
SUNDAY	0	0	0	1	1	0	0	1	1	0	1	0	1	0	1	0	1	2	0	1	0	2	1	1	0	15
MONDAY	0	0	0	0	0	3	0	4	1	1	0	1	4	2	0	1	3	2	0	1	0	0	0	0	0	23
TUESDAY	0	0	0	0	0	0	0	2	1	0	1	4	2	2	2	5	0	0	1	0	0	0	1	0	0	21
WEDNESDAY	0	0	0	0	0	0	1	0	1	4	1	6	6	4	4	2	1	1	2	1	0	2	1	0	0	37
THURSDAY	0	0	0	0	0	2	0	1	1	1	0	4	5	1	4	2	5	2	1	3	1	0	1	0	0	34
FRIDAY	1	0	0	0	0	2	0	1	1	2	2	4	1	6	4	4	4	3	3	4	0	0	0	3	0	45
SATURDAY	2	2	0	0	1	0	0	0	0	1	1	3	2	0	2	4	7	0	0	1	3	1	1	0	0	31
Totals	3	2	0	1	2	7	1	9	6	9	6	22	21	15	17	18	21	10	7	11	4	5	5	4	0	**206**

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	182
2-(Sport) Utility Vehicle	113
3-Passenger Van	4
4-Cargo Van (10K lbs or Less)	1
5-Pickup	54
6-Motor Home	1
7-School Bus	0
8-Transit Bus	3
9-Motor Coach	0
10-Other Bus	2
11-Motorcycle	4
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	1
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	10
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	15

Unit Type	Total
23-Bicyclist	1
24-Witness	25
25-Other	13
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	**429**

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	15	133	4	0	0	0	152
Ran Off Roadway	2	0	0	0	0	0	2
Failed to Yield Right-of-Way	39	0	0	0	0	0	39
Ran Red Light	9	0	0	0	0	0	9
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	1	0	0	0	0	0	1
Drove Too Fast For Conditions	6	0	0	0	0	0	6
Improper Turn	6	1	0	0	0	0	7
Improper Backing	24	0	0	0	0	0	24
Improper Passing	3	0	0	0	0	0	3
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	35	3	0	0	0	0	38
Failed to Keep in Proper Lane	15	1	0	0	0	0	16
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	6	1	0	0	0	0	7
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	5	0	0	0	0	0	5
Over-Correcting/Over-Steering	3	0	0	0	0	0	3
Other Contributing Action	13	3	0	0	0	0	16
Unknown	6	3	0	0	0	0	9
Total	**188**	**145**	**4**	**0**	**0**	**0**	**337**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	175	145	4	0	0	14	338
Physically Impaired	2	0	0	0	0	0	2
Emotional(Depressed, Angry, Disturbed, etc.)	3	0	0	0	0	0	3
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	1	0	0	0	0	0	1
Under the Influence of Medications/Drugs/Alcohol	4	0	0	0	0	0	4
Other	2	0	0	0	0	2	4
Total	**187**	**145**	**4**	**0**	**0**	**16**	**352**

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	35	0	0	0	0	35
20-24	44	0	0	0	0	44
25-29	34	0	0	0	0	34
30-39	69	0	0	0	0	69
40-49	58	0	0	0	0	58
50-59	51	0	0	0	0	51
60-69	42	0	0	0	0	42
70-79	23	0	0	0	0	23
80-Over	11	0	0	0	0	11
Unknown	21	1	0	15	0	37
Total	**388**	**1**	**0**	**15**	**0**	**404**

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	1
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	**Total**	**370**
6-Fell / Jumped from Motor Vehicle	2		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	6		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	321		
14-Parked Motor Vehicle	30		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	1		
25-Ditch	0		
26-Embankment	1		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	5		
33-Traffic Sign Support	0		
34-Traffic Signal Support	1		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	2		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	2	2
B	19	21
C	24	28
PD	153	0
Total	**198**	**51**

Road Character

Road Grade	Total
1-Level	142
2-On Grade	46
3-Top of Hill	2
4-Bottom of Hill	16
5-Other	0
Total	**206**

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	85
2-Traffic Signals (Flashing)	12
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	1
5-Stop Signs - Other	12
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	93
14-Other	3
Total	**206**

Light

Light Condition	Total
1-Daylight	148
2-Dawn	4
3-Dusk	5
4-Dark - Lighted	46
5-Dark - Not Lighted	2
6-Dark - Unknown Lighting	1
7-Unknown	0
Total	**206**

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	0	7	8	15
FEBRUARY	5	6	10	21
MARCH	9	5	5	19
APRIL	3	5	5	13
MAY	5	3	5	13
JUNE	5	2	2	9
JULY	9	5	6	20
AUGUST	6	7	1	14
SEPTEMBER	6	4	9	19
OCTOBER	8	9	7	24
NOVEMBER	6	6	5	17
DECEMBER	3	7	12	22
Total	**65**	**66**	**75**	**206**

Report is limited to the last 10 years of data.

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	70	5	17	36	0	5	5	0	0	0	0	0	0	0	138
Head-on - Sideswipe	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
Intersection Movement	0	0	7	24	0	2	0	0	0	0	0	0	0	0	33
Pedestrians	3	0	3	8	0	1	0	0	0	0	0	0	0	0	15
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	1	3	9	0	0	0	0	0	0	0	0	0	0	13
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Other	0	0	1	2	0	0	1	0	0	0	0	0	0	0	4
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**74**	**7**	**31**	**80**	**0**	**8**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**206**

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	22	0	0	0	0	0	0	2	0	0	4	28
Dark - Not Lighted	2	0	0	0	0	0	0	0	0	0	0	2
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	3	0	0	0	0	0	1	0	0	0	0	4
Daylight	117	1	0	0	0	0	1	1	0	0	7	127
Dusk	3	0	0	0	0	0	0	0	0	0	0	3
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	8	0	0	0	0	0	1	0	0	0	3	12
Dusk	1	0	0	0	0	0	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	6	6
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	1	1
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	5	5
Dusk	0	0	0	0	0	0	0	0	0	0	1	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	2	0	0	0	0	0	0	0	0	0	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	1	0	0	0	0	0	9	0	0	0	10
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	1	0	0	0	0	0	2	0	0	1	4
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**156**	**5**	**0**	**0**	**0**	**0**	**3**	**14**	**0**	**0**	**28**	**206**

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **PENOBSCOT** TOWN: **BANGOR**

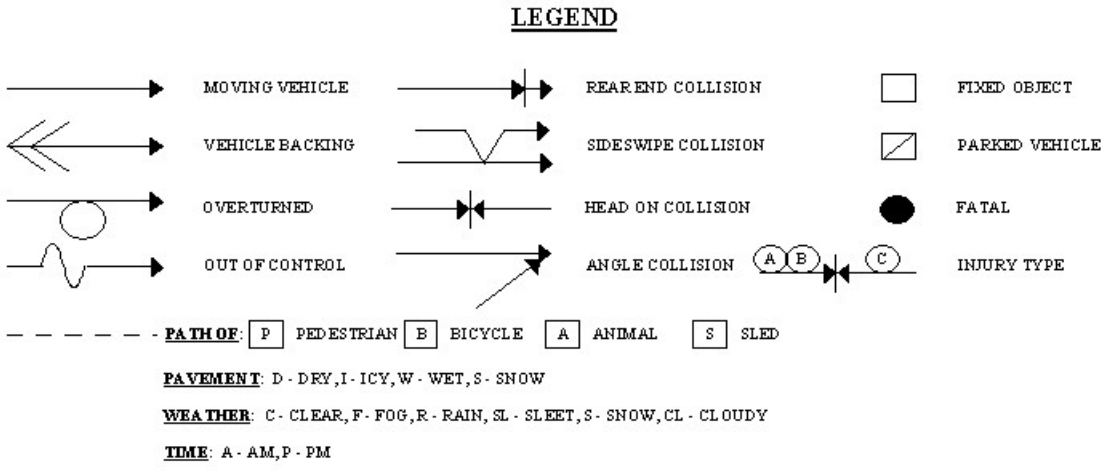
LOW NODE: **39629** HIGH NODE: **0000** REGION: **4** U/R: **URBAN**

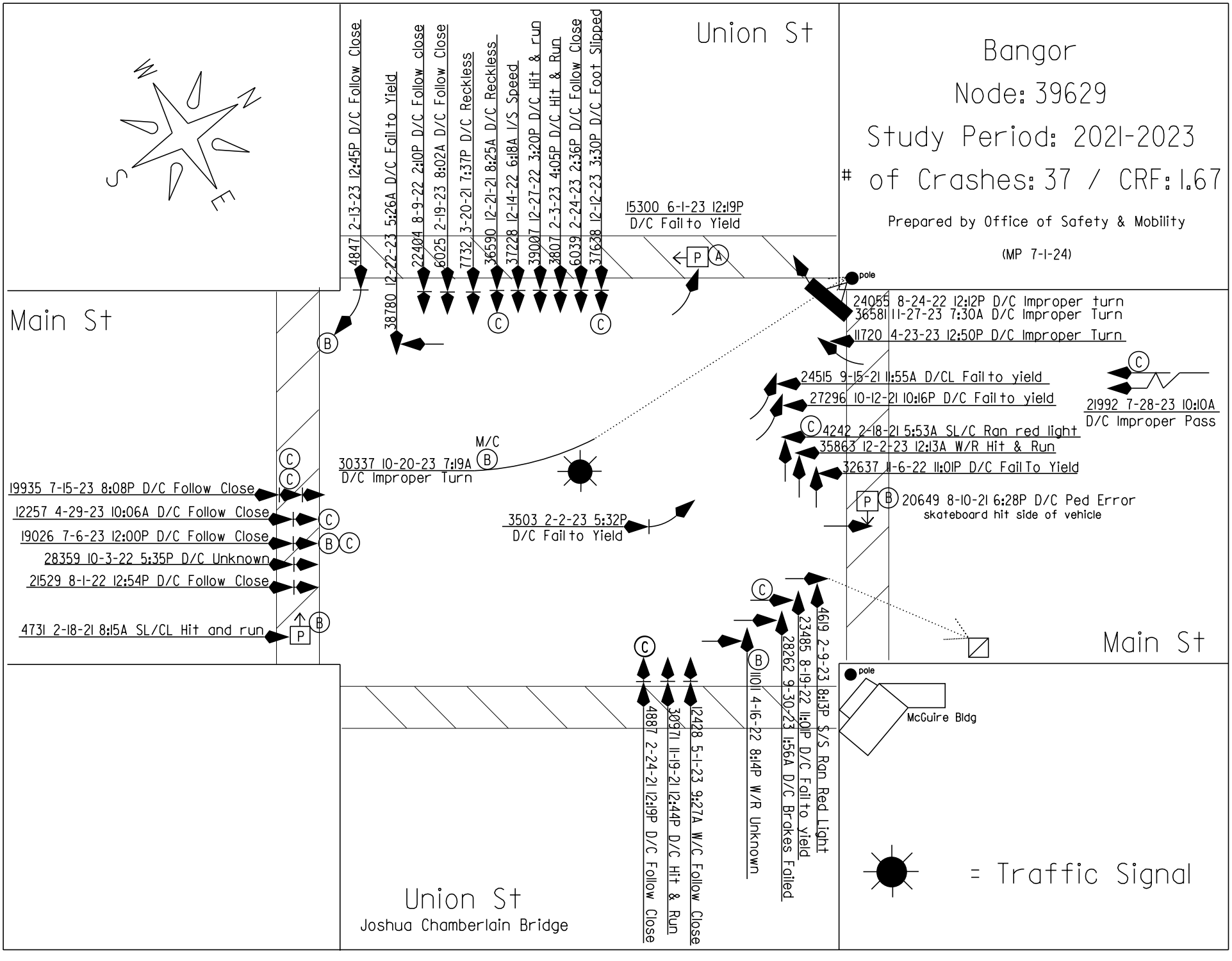
DESCRIPTION: **Int Main St & Union St**

RTE # / RD #: **1910282** DATE DRAWN: **7/1/2024** DRAWN BY: **Michelle**

STUDY FROM: **1/1/2021** STUDY TO: **12/31/2023**

CRASH RATE: **1.97** CRF: **1.67** % INJURY: **40.5** TOTAL CRASHES: **37**




Union St
Bangor
Node: 39629
Study Period: 2021-2023
# of Crashes: 37 / CRF: 1.67
Prepared by Office of Safety & Mobility
(MP 7-1-24)
Main St
4847 2-13-23 12:45P D/C Follow Close
38780 12-22-23 5:26A D/C Fail to Yield
22404 8-9-22 2:10P D/C Follow close
6025 2-19-23 8:02A D/C Follow Close
7732 3-20-21 7:37P D/C Reckless
36590 12-21-21 8:25A D/C Reckless
37228 12-14-22 6:18A I/S Speed
39007 12-27-22 3:20P D/C Hit & run
3807 2-3-23 4:05P D/C Hit & Run
6039 2-24-23 2:36P D/C Follow Close
37638 12-12-23 3:30P D/C Foot Slipped
15300 6-1-23 12:19P
D/C Fail to Yield
pole
24055 8-24-22 12:12P D/C Improper turn
36581 11-27-23 7:30A D/C Improper Turn
11720 4-23-23 12:50P D/C Improper Turn
24515 9-15-21 11:55A D/CL Fail to yield
27296 10-12-21 10:16P D/C Fail to yield
21992 7-28-23 10:10A
D/C Improper Pass
4242 2-18-21 5:53A SL/C Ran red light
35863 12-2-23 12:13A W/R Hit & Run
32637 11-6-22 11:01P D/C Fail To Yield
20649 8-10-21 6:28P D/C Ped Error
skateboard hit side of vehicle
M/C
30337 10-20-23 7:19A
D/C Improper Turn
3503 2-2-23 5:32P
D/C Fail to Yield
19935 7-15-23 8:08P D/C Follow Close
12257 4-29-23 10:06A D/C Follow Close
19026 7-6-23 12:00P D/C Follow Close
28359 10-3-22 5:35P D/C Unknown
21529 8-1-22 12:54P D/C Follow Close
4731 2-18-21 8:15A SL/CL Hit and run
4619 2-9-23 8:13P S/S Ran Red Light
23485 8-19-22 11:01P D/C Fail to yield
28262 9-30-23 1:56A D/C Brakes Failed
11011 4-16-22 8:14P W/R Unknown
4887 2-24-21 12:19P D/C Follow Close
30971 11-19-21 12:44P D/C Hit & Run
12428 5-1-23 9:27A W/C Follow Close
Main St
pole
McGuire Bldg
Union St
Joshua Chamberlain Bridge
= Traffic Signal


Search...
38761
38260
38764
FIRST ST
MAIN ST
UNION ST
780959
BANGOR
1A
SHORT ST
39637
68946
GALLAGHER PL
68945
39628
MAY ST
Scale: 1:1444
100ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Node	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Bangor
Int Main St & Union St

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 1910282	Start Node: 39629	Start Offset: 0	☐ Exclude First Node
	End Node: 39629	End Offset: 0	☐ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
39629	1910282 - 0.05	Int of MAIN ST UNION ST	9	37	0	1	6	8	22	40.5	6.245	1.98	1.18	1.67
												Statewide Crash Rate:	0.71	
Study Years:	3.00	NODE TOTALS:		37	0	1	6	8	22	40.5	6.245	1.97	1.18	1.67

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	3
MONDAY	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	5
TUESDAY	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	2	0	0	1	0	0	0	1	0	0	7
WEDNESDAY	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	4
THURSDAY	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	0	0	1	0	0	1	0	0	0	0	6
FRIDAY	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	1	0	6
SATURDAY	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	6
Totals	1	1	0	0	0	2	1	2	3	1	2	1	8	0	2	2	1	2	1	1	3	0	1	2	0	37

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	35
2-(Sport) Utility Vehicle	19
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	8
6-Motor Home	1
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	1
11-Motorcycle	1
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	3
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	3

Unit Type	Total
23-Bicyclist	0
24-Witness	11
25-Other	2
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	84

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	4	29	1	0	0	0	34
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	6	0	0	0	0	0	6
Ran Red Light	2	0	0	0	0	0	2
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	1	0	0	0	0	0	1
Improper Turn	3	0	0	0	0	0	3
Improper Backing	0	0	0	0	0	0	0
Improper Passing	1	0	0	0	0	0	1
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	9	1	0	0	0	0	10
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	2	0	0	0	0	0	2
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	3	0	0	0	0	0	3
Unknown	1	1	0	0	0	0	2
Total	32	31	1	0	0	0	64

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	31	31	1	0	0	2	65
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	1	2
Total	32	31	1	0	0	3	67

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	5	0	0	0	0	5
20-24	13	0	0	0	0	13
25-29	4	0	0	0	0	4
30-39	14	0	0	0	0	14
40-49	6	0	0	0	0	6
50-59	6	0	0	0	0	6
60-69	9	0	0	0	0	9
70-79	6	0	0	0	0	6
80-Over	2	0	0	0	0	2
Unknown	5	0	0	3	0	8
Total	70	0	0	3	0	73

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	66
6-Fell / Jumped from Motor Vehicle	1		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	63		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	1		
33-Traffic Sign Support	0		
34-Traffic Signal Support	1		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	1	1
B	6	6
C	8	10
PD	22	0
Total	37	17

Road Character

Road Grade	Total
1-Level	17
2-On Grade	15
3-Top of Hill	2
4-Bottom of Hill	3
5-Other	0
Total	37

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	30
2-Traffic Signals (Flashing)	6
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	1
14-Other	0
Total	37

Light

Light Condition	Total
1-Daylight	24
2-Dawn	1
3-Dusk	1
4-Dark - Lighted	11
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	37

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	0	0	0	0
FEBRUARY	3	0	6	9
MARCH	1	0	0	1
APRIL	0	1	2	3
MAY	0	0	1	1
JUNE	0	0	1	1
JULY	0	0	3	3
AUGUST	1	4	0	5
SEPTEMBER	1	0	1	2
OCTOBER	1	1	1	3
NOVEMBER	1	1	1	3
DECEMBER	1	2	3	6
Total	9	9	19	37

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	0	0	21	0	0	0	0	0	0	0	0	0	0	21
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	10	0	0	0	0	0	0	0	0	0	0	10
Pedestrians	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	37	0	0	0	0	0	0	0	0	0	0	37

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	7	0	0	0	0	0	0	0	0	0	0	7
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	1	0	0	0	0	1
Daylight	21	0	0	0	0	0	0	0	0	0	1	22
Dusk	1	0	0	0	0	0	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	1	0	0	0	0	0	1	0	0	0	0	2
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	2	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	1	0	0	0	0	0	1	0	0	0	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	30	1	0	0	0	0	2	1	0	0	3	37

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **PENOBSCOT** TOWN: **BANGOR**

LOW NODE: **39631** HIGH NODE: **41577** REGION: **4** U/R: **URBAN**

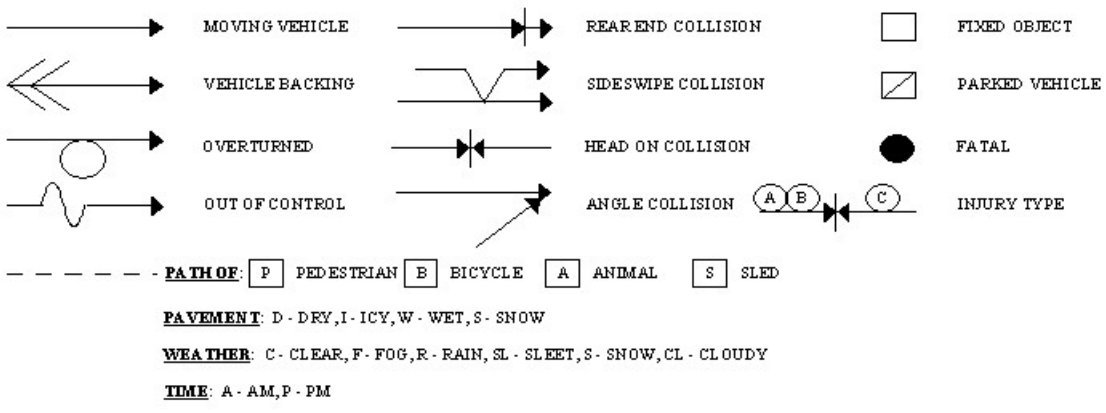
DESCRIPTION: **Main St from Cross St to Broad St**

RTE # / RD #: **3201377** DATE DRAWN: **10/15/2024** DRAWN BY: **Tim**

STUDY FROM: **1/1/2021** STUDY TO: **12/31/2023**

CRASH RATE: **1538.48** CRF: **2.59** % INJURY: **30** TOTAL CRASHES: **10**

LEGEND



Bangor

Link: 39631-41577

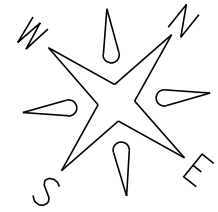
Element: 3123566

Study Period: 2021-2023

# of Crashes: 10 / CRF: 2.59

Prepared by Office of Safety & Mobility

(TM 10-15-24)



39631

41577

34146 11-20-22 7:29A D/C OUI

21322 7-30-22 4:42P D/C
moved for fire truck

20642 7-20-23 11:52A D/C Fail to Yield

29075 10-8-23 9:38P W/R Ped Error

Main Street

15635 5-27-22 12:48A W/C Hit & Run
making U-Turn and hit vehicle

15229 6-20-21 5:17P D/C Improper Backing

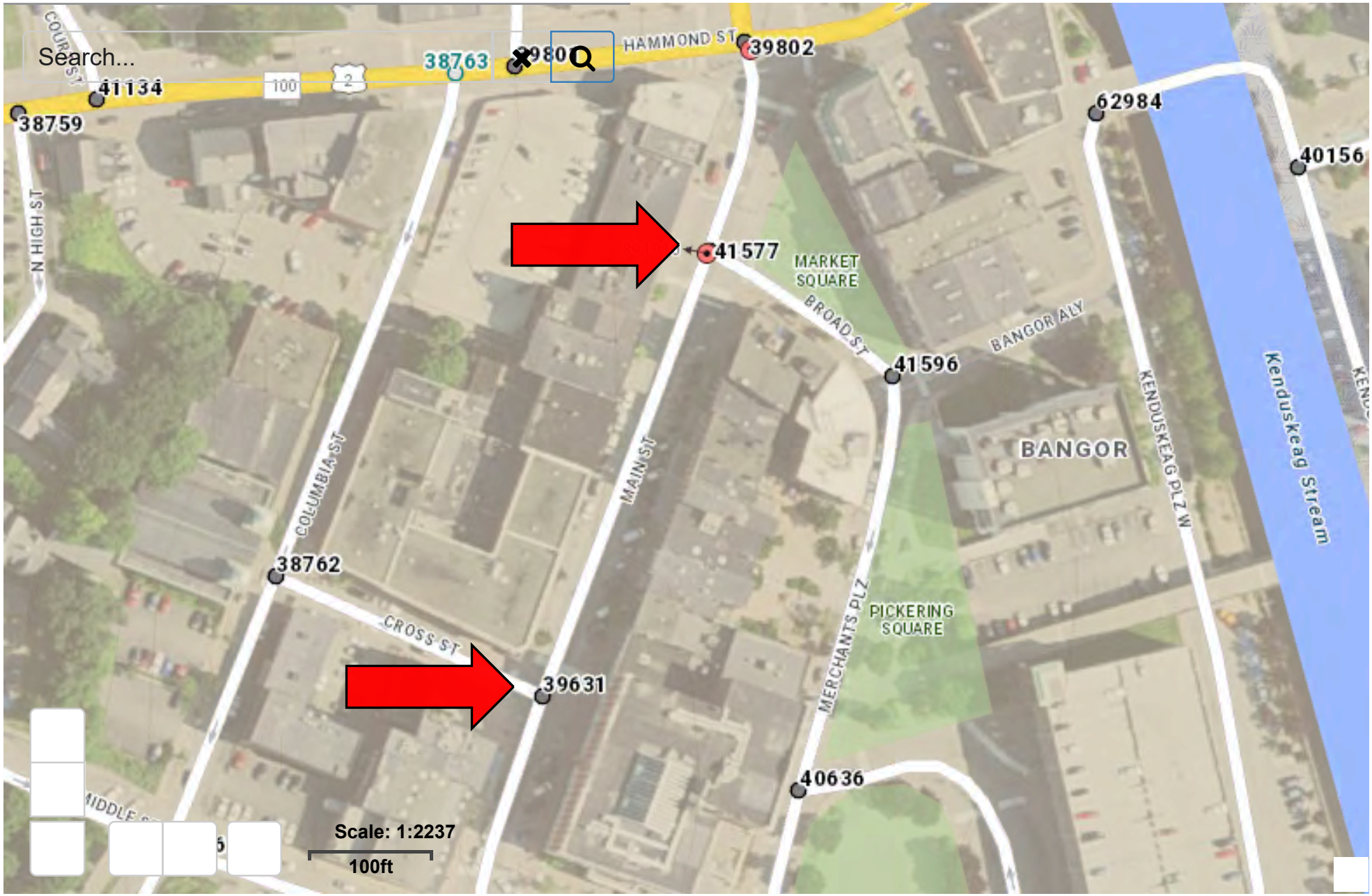
20113 8-2-21 8:10A D/C Fail To Yield

18075 7-16-21 4:20P D/C Improper Backing

17857 7-14-21 1:39P D/CL Improper backing

968 1-6-22 6:51P S/C Improper Backing

parking →


Search...
38763
HAMMOND ST
39802
41134
38759
62984
40156
N HIGH ST
41577
MARKET SQUARE
BROAD ST
41596
BANGOR ALY
BANGOR
KENDUSKEAG PLZ W
Kenduskeag Stream
COLUMBIA ST
MAIN ST
38762
CROSS ST
PICKERING SQUARE
MERCHANTS PLZ
39631
40636
Scale: 1:2237
100ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Element	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Bangor
Main St from Cross St to Broad St

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 3201377	Start Node: 39631	Start Offset: 0	☑ Exclude First Node
	End Node: 41577	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
39631	41577	3123566	0 - 0.07	3201377 - 0.24	0.07	2	10	0	0	2	1	6	33.3	0.00217	1538.48	593.19	2.59
Int of CROSS ST MAIN ST				RD INV 3201377											Statewide Crash Rate: 208.62		
Study Years: 3.00				Section Totals:	0.07		10	0	0	2	1	6	30.0	0.00217	1538.48	593.19	2.59

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
39631	41577	3123566	0 - 0.07	3201377 - 0.24	10	0	0	2	1	6	2022-34146	11/20/2022	0.25	C
											2021-17857	07/14/2021	0.25	PD
											2022-15635	05/27/2022	0.27	
											2021-20113	08/02/2021	0.27	B
											2023-29075	10/08/2023	0.28	B
											2022-21322	07/30/2022	0.28	PD
											2022-968	01/06/2022	0.29	PD
											2021-18075	07/16/2021	0.29	PD
											2021-15229	06/20/2021	0.29	PD
											2023-20642	07/20/2023	0.29	PD
				Totals:	10	0	0	2	1	6				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	3
MONDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
FRIDAY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Totals	1	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	2	1	1	0	0	1	0	0	0	10

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	5
2-(Sport) Utility Vehicle	11
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	1
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	0
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	1

Unit Type	Total
23-Bicyclist	1
24-Witness	3
25-Other	1
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	23

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	5	0	0	0	0	6
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	2	0	0	0	0	0	2
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	4	0	0	0	0	0	4
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	1	0	0	0	0	0	1
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	1	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0
Total	9	5	0	0	0	0	14

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	8	5	0	0	0	2	15
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	1	0	0	0	0	0	1
Other	0	0	0	0	0	0	0
Total	9	5	0	0	0	2	16

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	1	0	0	0	0	1
20-24	0	0	0	0	0	0
25-29	1	0	0	0	0	1
30-39	7	0	0	0	0	7
40-49	0	0	0	0	0	0
50-59	1	0	0	0	0	1
60-69	6	0	0	0	0	6
70-79	0	0	0	0	0	0
80-Over	1	0	0	0	0	1
Unknown	1	1	0	1	0	3
Total	18	1	0	1	0	20

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	17
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	13		
14-Parked Motor Vehicle	3		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	2	2
C	1	1
PD	6	0
Total	9	3

Road Character

Road Grade	Total
1-Level	6
2-On Grade	4
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	10

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	1
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	8
14-Other	1
Total	10

Light

Light Condition	Total
1-Daylight	7
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	3
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	10

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	0	1	0	1
FEBRUARY	0	0	0	0
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	1	0	1
JUNE	1	0	0	1
JULY	2	1	1	4
AUGUST	1	0	0	1
SEPTEMBER	0	0	0	0
OCTOBER	0	0	1	1
NOVEMBER	0	1	0	1
DECEMBER	0	0	0	0
Total	4	4	2	10

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	1	0	0	1	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	6	0	0	0	0	0	0	0	0	0	0	6
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	1	0	0	0	0	0	0	0	0	0	0	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	1	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	0	0	0	0	0	0	1	0	0	2	10

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **PENOBSCOT** TOWN: **BANGOR**

LOW NODE: **39803** HIGH NODE: **39804** REGION: **4** U/R: **URBAN**

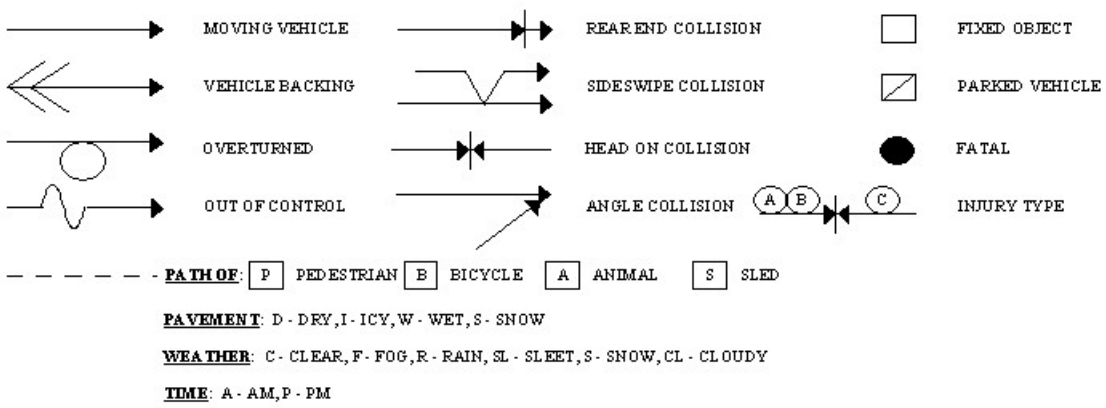
DESCRIPTION: **State St from Hammond St to Harlow St**

RTE # / RD #: **0002X** DATE DRAWN: **10/15/2024** DRAWN BY: **Tim**

STUDY FROM: **1/1/2021** STUDY TO: **12/31/2023**

CRASH RATE: **3055.49** CRF: **4.71** % INJURY: **21.4** TOTAL CRASHES: **14**

LEGEND



Prepared by Office of Safety & Mobility

(TM 10-15-24)

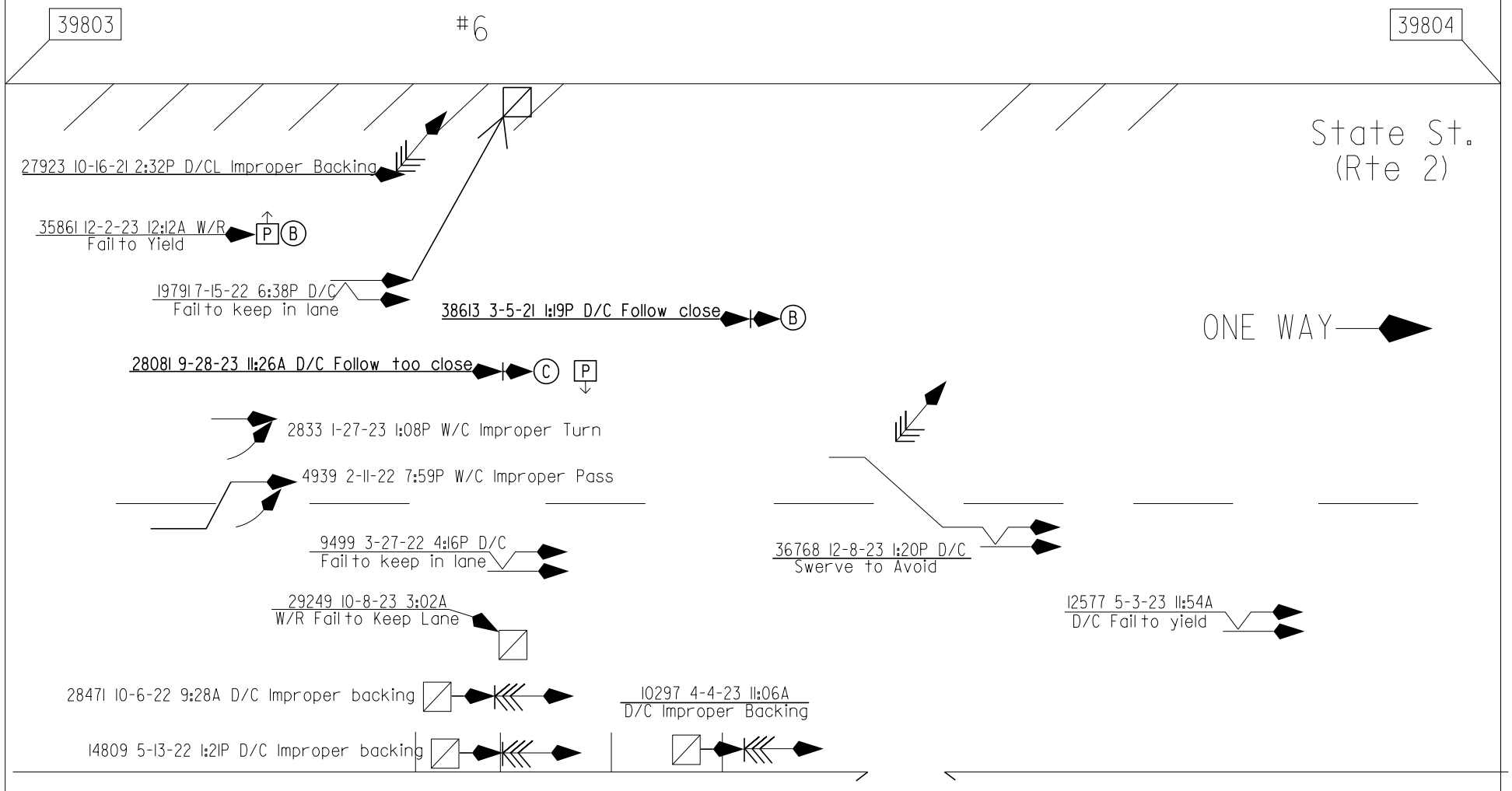
Bangor

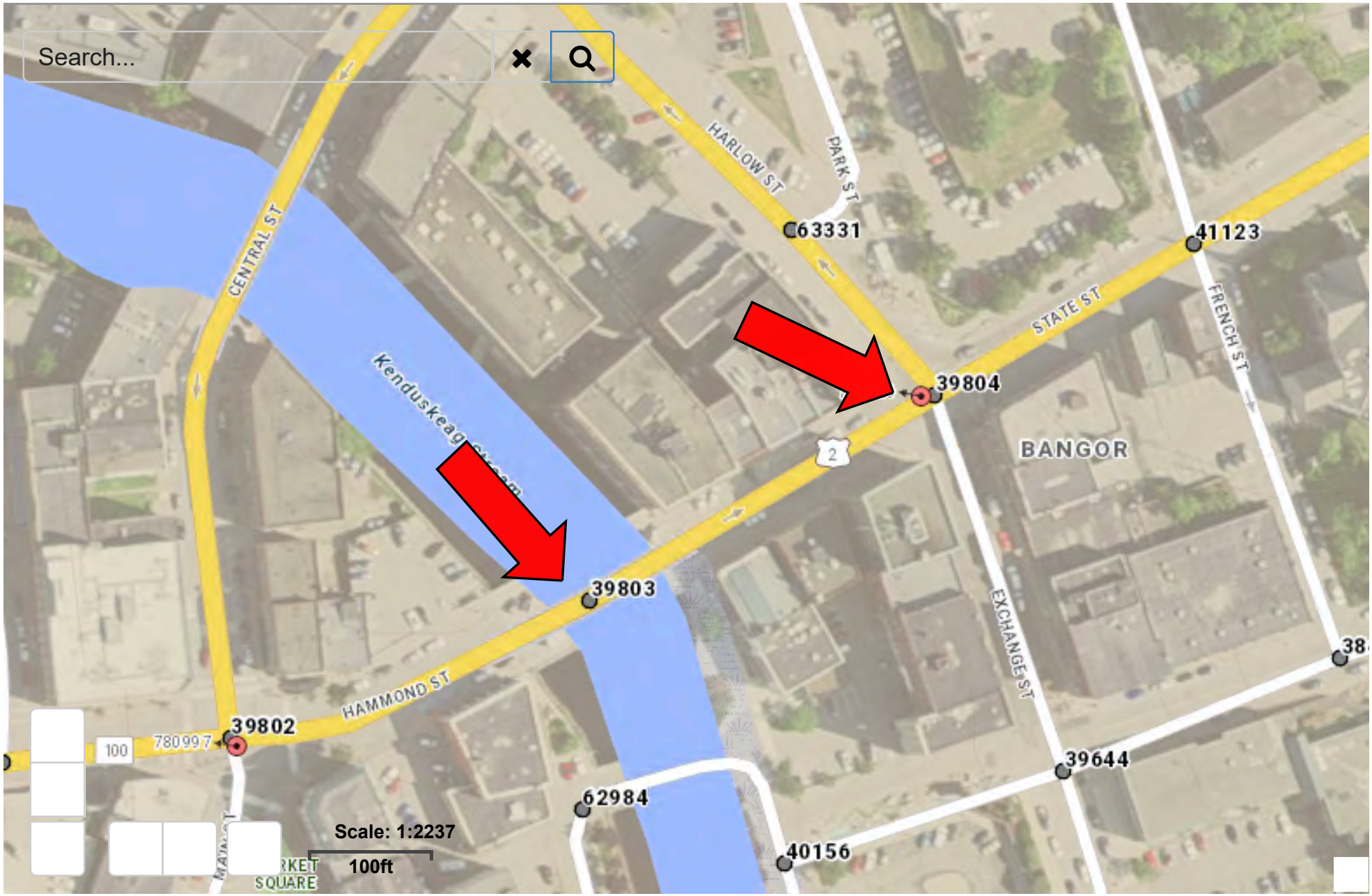
Link: 39803-39804

Element: 4630539

Study Period: 2021-2023

# of Crashes: 14 / CRF: 4.71




Search...
HARLOW ST
PARK ST
CENTRAL ST
63331
41123
STATE ST
FRENCH ST
39804
BANGOR
2
Kenduskeag Stream
39803
EXCHANGE ST
HAMMOND ST
39802
100
780997
39644
62984
40156
Scale: 1:2237
100ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Element	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Bangor
State St from Hammond St to Harlow St

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 0002X	Start Node: 39803	Start Offset: 0	☑ Exclude First Node
	End Node: 39804	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
39803	39804	4630539	0 - 0.06	0002X - 144.02	0.06	2	14	0	0	2	1	11	21.4	0.00153	3055.49	649.16	4.71
Int of HAMMOND ST	STATE ST			US 2											Statewide Crash Rate: 208.62		
Study Years: 3.00				Section Totals:	0.06		14	0	0	2	1	11	21.4	0.00153	3055.49	649.17	4.71

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
39803	39804	4630539	0 - 0.06	0002X - 144.02	14	0	0	2	1	11	2023-35861	12/02/2023	144.03	B
											2022-4939	02/11/2022	144.03	PD
											2023-2833	01/27/2023	144.03	PD
											2023-28081	09/28/2023	144.04	C
											2022-19791	07/15/2022	144.04	PD
											2022-9499	03/27/2022	144.04	PD
											2022-14809	05/13/2022	144.04	PD
											2021-27923	10/16/2021	144.04	PD
											2022-28471	10/06/2022	144.04	PD
											2023-29249	10/08/2023	144.04	PD
											2021-38613	03/05/2021	144.05	B
											2023-10297	04/04/2023	144.05	PD
											2023-36768	12/08/2023	144.06	PD
											2023-12577	05/03/2023	144.07	PD
				Totals:	14	0	0	2	1	11				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1	1	0	0	0	0	0	6
SATURDAY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Totals	1	0	0	1	0	0	0	0	0	1	0	3	0	4	1	0	1	0	1	1	0	0	0	0	0	14

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	15
2-(Sport) Utility Vehicle	8
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	4
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	1
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	0
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	1

Unit Type	Total
23-Bicyclist	0
24-Witness	0
25-Other	0
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	29

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	10	0	0	0	0	11
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	1	0	0	0	0	0	1
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	1	1	0	0	0	0	2
Improper Backing	4	0	0	0	0	0	4
Improper Passing	1	0	0	0	0	0	1
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	2	0	0	0	0	0	2
Failed to Keep in Proper Lane	3	0	0	0	0	0	3
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	13	11	0	0	0	0	24

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	11	11	0	0	0	1	23
Physically Impaired	1	0	0	0	0	0	1
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	1
Total	13	11	0	0	0	1	25

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	3	0	0	0	0	3
20-24	1	0	0	0	0	1
25-29	2	0	0	0	0	2
30-39	8	0	0	0	0	8
40-49	6	0	0	0	0	6
50-59	3	0	0	0	0	3
60-69	2	0	0	0	0	2
70-79	0	0	0	0	0	0
80-Over	1	0	0	0	0	1
Unknown	2	0	0	1	0	3
Total	28	0	0	1	0	29

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	27
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	22		
14-Parked Motor Vehicle	4		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	2	2
C	1	1
PD	11	0
Total	14	3

Road Character

Road Grade	Total
1-Level	12
2-On Grade	2
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	14

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	1
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	13
14-Other	0
Total	14

Light

Light Condition	Total
1-Daylight	11
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	2
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	1
7-Unknown	0
Total	14

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	0	0	1	1
FEBRUARY	0	1	0	1
MARCH	1	1	0	2
APRIL	0	0	1	1
MAY	0	1	1	2
JUNE	0	0	0	0
JULY	0	1	0	1
AUGUST	0	0	0	0
SEPTEMBER	0	0	1	1
OCTOBER	1	1	1	3
NOVEMBER	0	0	0	0
DECEMBER	0	0	2	2
Total	2	5	7	14

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	12	0	0	0	0	0	1	0	0	0	0	0	0	0	13
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	13	0	0	0	0	0	1	0	0	0	0	0	0	0	14

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	1	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	9	0	0	0	0	0	0	0	0	0	1	10
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	1	0	0	0	0	0	0	0	0	0	0	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	1	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	1	1
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	10	0	0	0	0	0	0	0	0	0	4	14

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **PENOBSCOT** TOWN: **BANGOR**

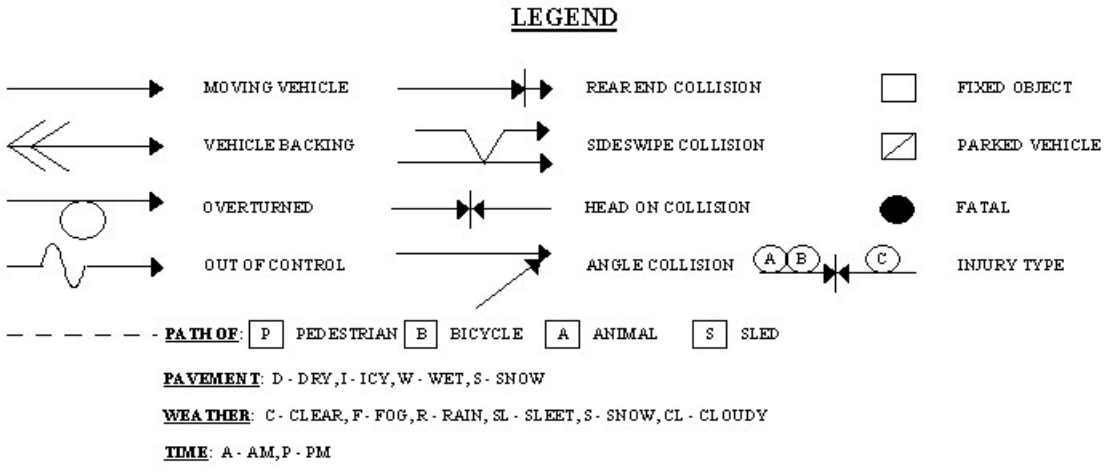
LOW NODE: **73386** HIGH NODE: **39802** REGION: **4** U/R: **URBAN**

DESCRIPTION: **Central St from Harlow St cut to Hammond St/Main**

RTE # / RD #: **0002W** DATE DRAWN: **10/15/2024** DRAWN BY: **Tim**

STUDY FROM: **1/1/2021** STUDY TO: **12/31/2023**

CRASH RATE: **1083.09** CRF: **2** % INJURY: **0** TOTAL CRASHES: **10**



Bangor

Prepared by Office of Safety & Mobility

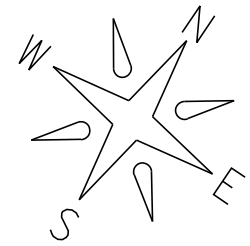
(TM 10-15-24)

Link: 73386-39802

Element: 4602387

Study Period: 2021-2023

# of Crashes: 10 / CRF: 2.00

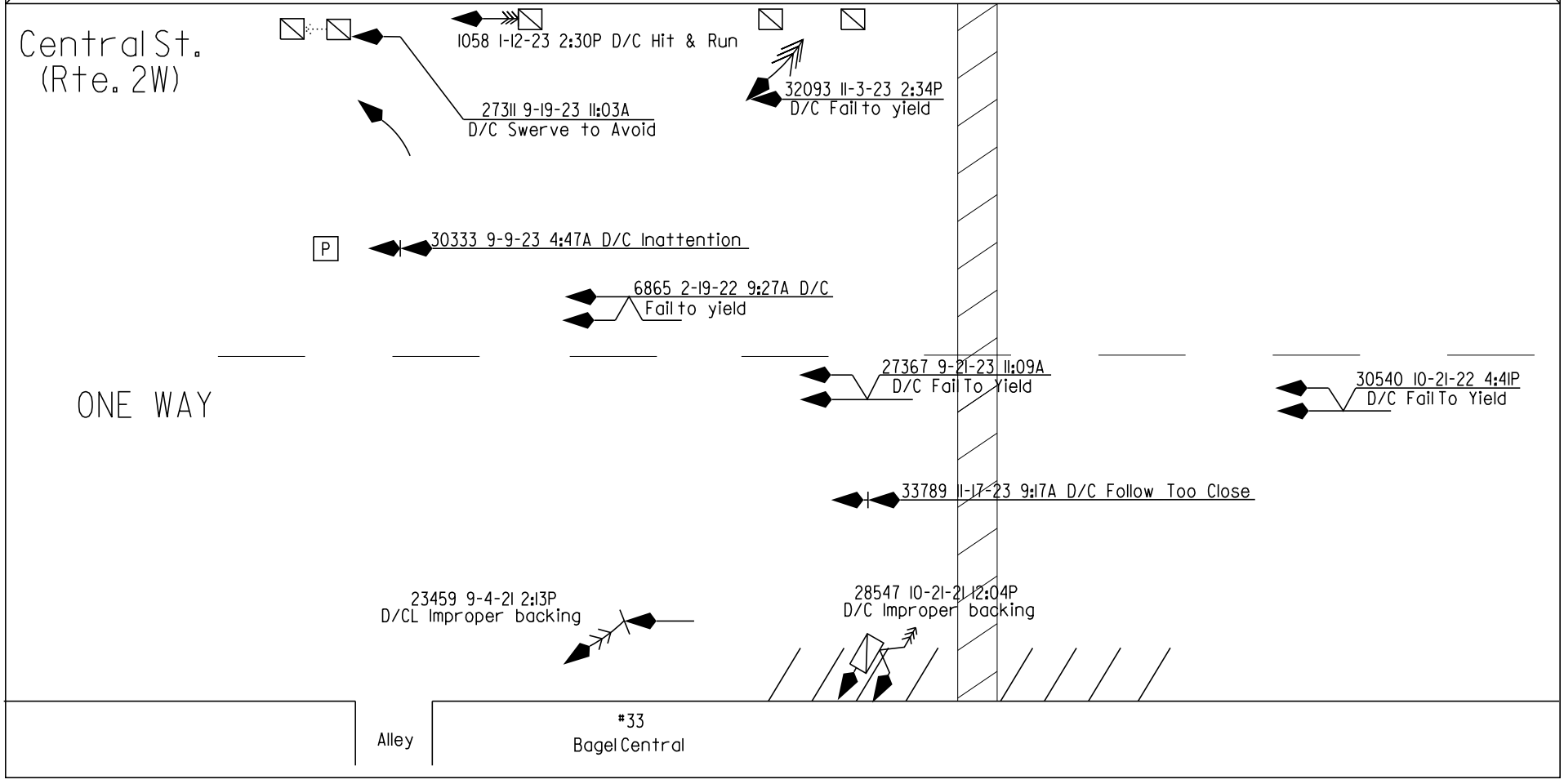


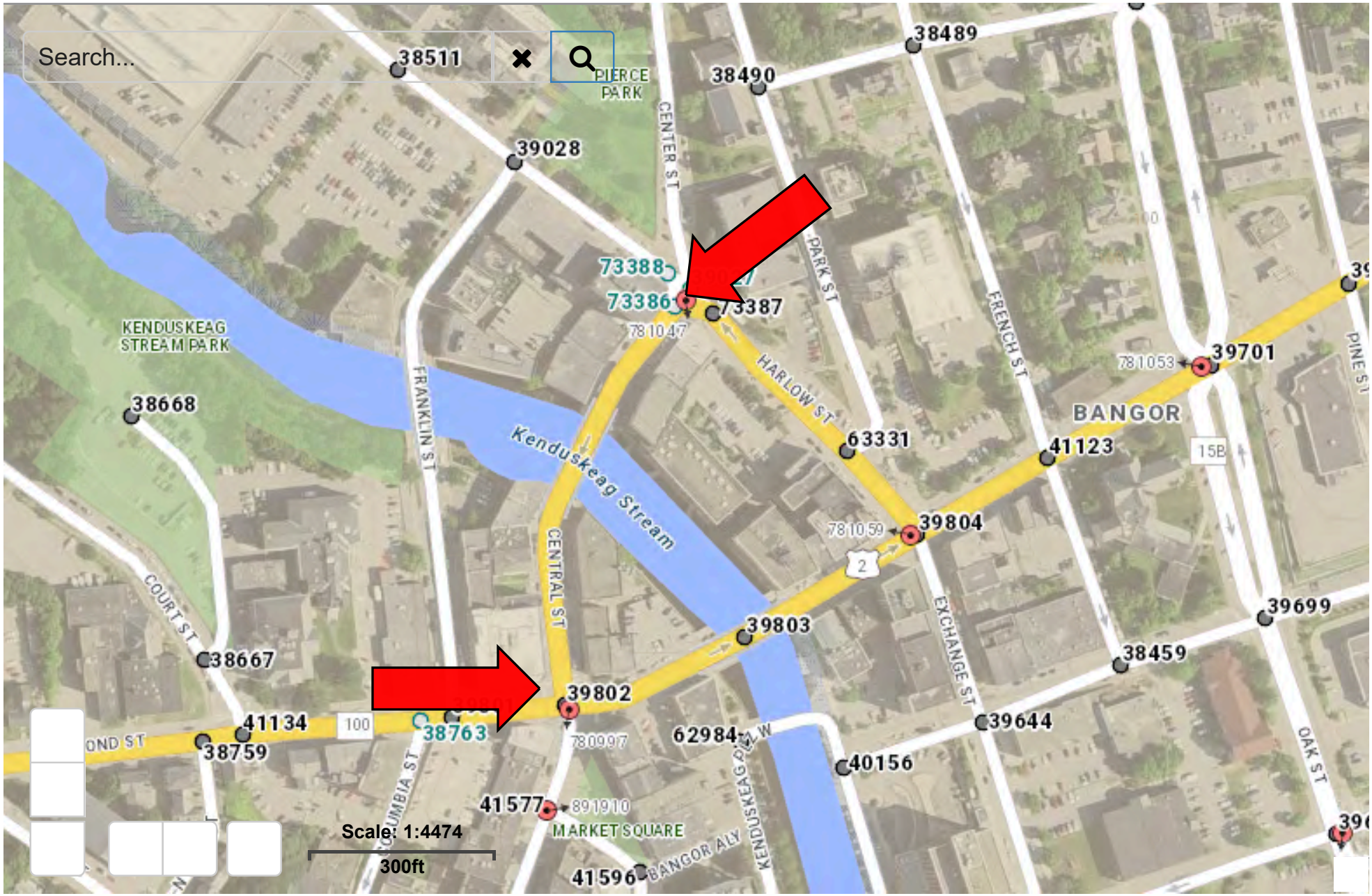
Hammond

39802

Harlow

73386




Search...
38511
PIERCE PARK
38490
38489
39028
CENTER ST
73388
73386
73387
781047
PARK ST
FRENCH ST
KENDUSKEAG STREAM PARK
FRANKLIN ST
HARLOW ST
781053
39701
38668
Kenduskeag Stream
BANGOR
63331
41123
15B
781059
39804
CENTRAL ST
2
COURT ST
39803
39699
38459
38667
39802
EXCHANGE ST
41134
100
38763
780997
62984
39644
38759
40156
OND ST
COLUMBIA ST
41577
891910
MARKET SQUARE
OAK ST
KENDUSKEAG
BANGOR ALY
41596
Scale: 1:4474
300ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Element	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Bangor
Central St from Harlow St cut to Hammond St/Main St

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 0002W	Start Node: 73386	Start Offset: 0	☑ Exclude First Node
	End Node: 39802	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
73386	39802	4602387	0 - 0.13	0002W - 0.46	0.13	2	10	0	0	0	0	9	0.0	0.00308	1083.09	541.68	2.00
Non Int CENTRAL ST				US 2W											Statewide Crash Rate: 208.62		
Study Years: 3.00				Section Totals:	0.13		10	0	0	0	0	9	0.0	0.00308	1083.09	541.68	2.00

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
73386	39802	4602387	0 - 0.13	0002W - 0.46	10	0	0	0	0	9	2022-30540	10/21/2022	0.48	PD
											2021-28547	10/21/2021	0.52	PD
											2023-33789	11/17/2023	0.52	PD
											2023-27367	09/21/2023	0.52	PD
											2023-32093	11/03/2023	0.53	PD
											2021-23459	09/04/2021	0.54	PD
											2022-6865	02/19/2022	0.54	PD
											2023-1058	01/12/2023	0.55	
											2023-30333	09/09/2023	0.56	PD
											2023-27311	09/19/2023	0.56	PD
				Totals:	10	0	0	0	0	9				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	3
FRIDAY	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	3
SATURDAY	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Totals	0	0	0	0	1	0	0	0	0	2	0	2	1	0	3	0	1	0	0	0	0	0	0	0	0	10

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	12
2-(Sport) Utility Vehicle	3
3-Passenger Van	1
4-Cargo Van (10K lbs or Less)	0
5-Pickup	3
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	0
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0

Unit Type	Total
23-Bicyclist	0
24-Witness	0
25-Other	2
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	21

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	0	7	0	0	0	0	7
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	4	0	0	0	0	0	4
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	2	0	0	0	0	0	2
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	1	0	0	0	0	0	1
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	1	0	0	0	0	0	1
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	8	7	0	0	0	0	15

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	8	7	0	0	0	0	15
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	8	7	0	0	0	0	15

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	2	0	0	0	0	2
20-24	3	0	0	0	0	3
25-29	3	0	0	0	0	3
30-39	4	0	0	0	0	4
40-49	2	0	0	0	0	2
50-59	2	0	0	0	0	2
60-69	2	0	0	0	0	2
70-79	1	0	0	0	0	1
80-Over	0	0	0	0	0	0
Unknown	2	0	0	0	0	2
Total	21	0	0	0	0	21

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	19
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	15		
14-Parked Motor Vehicle	4		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	0	0
PD	9	0
Total	9	0

Road Character

Road Grade	Total
1-Level	9
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	1
5-Other	0
Total	10

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	1
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	9
14-Other	0
Total	10

Light

Light Condition	Total
1-Daylight	9
2-Dawn	1
3-Dusk	0
4-Dark - Lighted	0
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	10

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	0	0	1	1
FEBRUARY	0	1	0	1
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	0	0
SEPTEMBER	1	0	3	4
OCTOBER	1	1	0	2
NOVEMBER	0	0	2	2
DECEMBER	0	0	0	0
Total	2	2	6	10

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	2	4	0	0	0	1	3	0	0	0	0	0	0	0	10
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	4	0	0	0	1	3	0	0	0	0	0	0	0	10

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	1	0	0	0	0	0	0	0	0	0	0	1
Daylight	8	0	0	0	0	0	0	0	0	0	0	8
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	1	0	0	0	0	0	0	0	0	0	0	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	10	0	0	0	0	0	0	0	0	0	0	10

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **PENOBSCOT** TOWN: **BANGOR**

LOW NODE: **73388** HIGH NODE: **39028** REGION: **4** U/R: **URBAN**

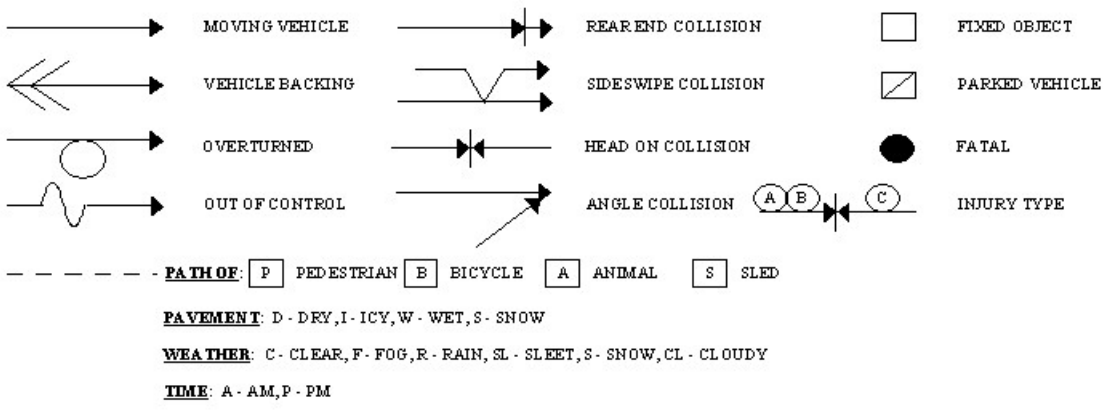
DESCRIPTION: **Harlow St from Central St to Franklin St**

RTE # / RD #: **1910131** DATE DRAWN: **10/15/2024** DRAWN BY: **Tim**

STUDY FROM: **1/1/2021** STUDY TO: **12/31/2023**

CRASH RATE: **2036.21** CRF: **3.48** % INJURY: **0** TOTAL CRASHES: **8**

LEGEND



Bangor

Link: 73388-39028

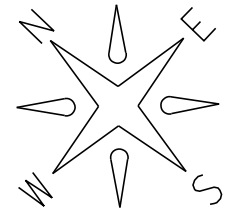
Element: 4602396

Study Period: 2021-2023

of Crashes: 8 / CRF: 3.48

Prepared by Office of Safety & Mobility

(TM 10/15/24)



39028

73388

Harlow St

2681 1-27-23 11:24A W/C Hit & Run

22534 8-10-22 11:40A D/C
Improper Backing

21791 8-3-22 2:49P D/C
Swerve to Avoid

vehicle parallel parking
southbound side

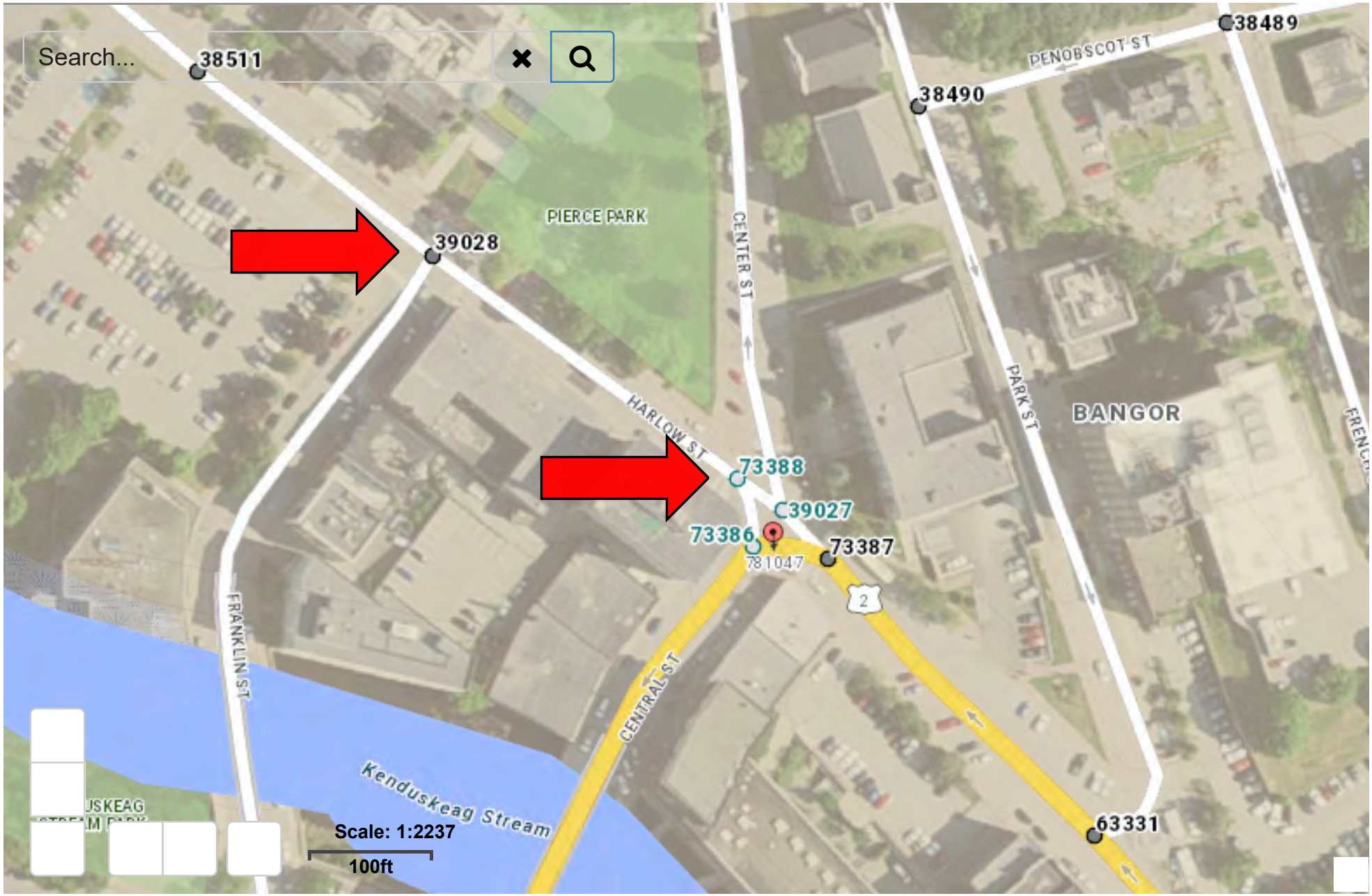
4162 2-7-23 1:00P D/C Improper Backing

28623 10-3-23 7:50A D/C Follow too Close

3496 2-1-23 3:32P D/C
parked and pulled back out

9071 4-9-21 5:37P D/C
Fail to Keep In Lane

7734 3-26-21 11:40P D/C
Improper Backing


Search...
38511
39028
PIERCE PARK
CENTER ST
38490
PENOBSCOT ST
38489
PARK ST
BANGOR
HARLOW ST
73388
C39027
73386
781047
73387
2
FRANKLIN ST
CENTRAL ST
Kenduskeag Stream
63331
Scale: 1:2237
100ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I - Single Element	☐ Section Detail	☑ Crash Summary II	☐ 1320 Public	☐ 1320 Private	☐ 1320 Summary

REPORT DESCRIPTION

Bangor
Harlow St from Central St to Franklin St

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 1910131	Start Node: 73388	Start Offset: 0	☑ Exclude First Node
	End Node: 39028	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
73388	39028	4602396	0 - 0.06	1910131 - 0.02	0.06	2	8	0	0	0	0	7	0.0	0.00131	2036.21	585.00	3.48
Int of CENTRAL ST	HARLOW ST			RD INV 19 10131											Statewide Crash Rate: 172.50		
Study Years: 3.00				Section Totals:	0.06		8	0	0	0	0	7	0.0	0.00131	2036.21	585.01	3.48

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
73388	39028	4602396	0 - 0.06	1910131 - 0.02	8	0	0	0	0	7	2022-21791	08/03/2022	0.03	PD
											2023-28623	10/03/2023	0.04	PD
											2023-2681	01/27/2023	0.05	
											2023-4162	02/07/2023	0.05	PD
											2022-22534	08/10/2022	0.05	PD
											2023-3496	02/01/2023	0.06	PD
											2021-7734	03/26/2021	0.06	PD
											2021-9071	04/09/2021	0.07	PD
				Totals:	8	0	0	0	0	7				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	1	0	0	0	2	0	1	1	1	0	1	0	0	0	0	0	1	0	8

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	3
2-(Sport) Utility Vehicle	5
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	6
6-Motor Home	0
7-School Bus	0
8-Transit Bus	1
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	0
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0

Unit Type	Total
23-Bicyclist	0
24-Witness	0
25-Other	1
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	16

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	3	0	0	0	0	4
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	0	0	0	0	0	0	0
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	3	0	0	0	0	0	3
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	1	0	0	0	0	1
Failed to Keep in Proper Lane	1	0	0	0	0	0	1
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	1	0	0	0	0	0	1
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	1	0	0	0	0	0	1
Total	7	4	0	0	0	0	11

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	7	4	0	0	0	0	11
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	7	4	0	0	0	0	11

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	1	0	0	0	0	1
20-24	1	0	0	0	0	1
25-29	0	0	0	0	0	0
30-39	1	0	0	0	0	1
40-49	3	0	0	0	0	3
50-59	4	0	0	0	0	4
60-69	2	0	0	0	0	2
70-79	3	0	0	0	0	3
80-Over	0	0	0	0	0	0
Unknown	1	0	0	0	0	1
Total	16	0	0	0	0	16

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	15
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	12		
14-Parked Motor Vehicle	3		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	0	0
PD	7	0
Total	7	0

Road Character

Road Grade	Total
1-Level	8
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	8

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	8
14-Other	0
Total	8

Light

Light Condition	Total
1-Daylight	7
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	1
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	8

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	0	0	1	1
FEBRUARY	0	0	2	2
MARCH	1	0	0	1
APRIL	1	0	0	1
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	2	0	2
SEPTEMBER	0	0	0	0
OCTOBER	0	0	1	1
NOVEMBER	0	0	0	0
DECEMBER	0	0	0	0
Total	2	2	4	8

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	6	0	0	0	0	0	0	0	0	0	1	7
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	0	0	0	0	0	0	0	0	0	1	8

APPENDIX E

COST ESTIMATES

PRELIMINARY PROBABLE CONSTRUCTION COSTS ESTIMATE SUMMARY			
Street/Intersection	PROBABLE COST		
	OPTION A 1-way Signalized	OPTION B 2-way Signalized	OPTION C 2-way Roundabouts
Harlow Street	$5,800,000	$5,800,000	$5,800,000
Exchange Street	$10,000	$10,000	$10,000
York Street	$885,000	$885,000	$885,000
State Street	$2,900,000	$2,900,000	$2,900,000
Central Street	$3,900,000	$3,900,000	$3,900,000
Franklin Street	$3,850,000	$3,850,000	$3,850,000
Hammond Streeet	$2,200,000	$2,200,000	$2,200,000
Main Street	$11,400,000	$11,400,000	$11,400,000
Union Street	$2,500,000	$2,500,000	$2,500,000
Water Street	$10,000	$10,000	$10,000
Broad/Independent	$475,000	$475,000	$3,500,000
Park Street	$225,000	$225,000	$225,000
Center Street	$10,000	$10,000	$10,000
Circular Core	$2,250,000	$2,500,000	$7,500,000
Merchant Plaza/Broad St	$3,000,000	$3,000,000	$3,000,000
Waterfront Park	$3,000,000	$3,000,000	$3,000,000
TOTAL	**$42,415,000**	**$42,665,000**	**$50,690,000**

ESTIMATE 1: Park Street - Center Street to Harlow Street - 0.2 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.200	COMMON EXCAVATION	70	CY	$43.00	$3,010
304.10	AGGREGATE SUBB COURSE - GRAVEL	60	CY	$70.00	$4,200
403.209	HOT MIX ASPHALT, 9.5 MM INCID.(SW,DRIVES)	22	TON	$502.00	$11,040
419.30	SAW CUTTING BITUMINOUS PAVEMENT	325	LF	$16.00	$5,200
604.07	CATCH BASIN TYPE A1-C	1	EA	$8,500.00	$8,500
605.11	12" UNDERDRAIN TYPE C	30	LF	$162.00	$4,860
608.26	CURB RAMP DETECTABLE WARNING FIELD	60	SF	$280.00	$16,800
609.11	VERTICAL CURB - TYPE 1	245	LF	$141.00	$34,550
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	7	EA	$567.00	$3,970
615.07	LOAM	12	CY	$87.00	$1,040
618.13	SEEDING METHOD NO. 1	1	UNIT	$62.00	$60
619.12	MULCH	1	UNIT	$84.00	$80
627.75	Y/W PAVEMENT MARKING	120	SF	$5.00	$600
643.62	RECTANGULAR RAPID FLASHING BEACON	1	EA	$20,000.00	$20,000
	25% CONTINGENCY				$28,478
				SUBTOTAL	$142,388
659.10	MOBILIZATION	1	LS	$14,300.00	$14,300
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$14,300.00	$14,300
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$1,500.00	$1,500
				CONSTRUCTION TOTAL	$172,488
	PRELIMINARY ENGINEERING				$34,500
	CONSTRUCTION ENGINEERING				$17,300
TOTAL					$224,288

ESTIMATE #2: Harlow Street - Franklin Street to State Street - 0.18 Miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	6,930	CY	$43.00	$297,990
304.10	AGGREGATE SUBB COURSE - GRAVEL	4,920	CY	$70.00	$344,400
304.14	AGGREGATE BASE COURSE - TYPE A	1,005	CY	$82.00	$82,410
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	665	TON	$416.00	$276,640
403.213	HOT MIX ASPHALT, 12.5 MM BASE	1,325	TON	$412.00	$545,900
419.30	SAW CUTTING BITUMINOUS PAVEMENT	4,700	LF	$16.00	$75,200
525.720	BENCH	6	EA	$2,000.00	$12,000
604.072	CATCH BASIN TYPE A1-C	7	EA	$8,500.00	$59,500
605.11	12" UNDERDRAIN TYPE C	1,180	LF	$162.00	$191,160
608.07	PLAIN CONCRETE SIDEWALK	2,710	SY	$194.00	$525,740
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.11	VERTICAL CURB - TYPE 1	2,495	LF	$141.00	$351,800
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	28	EA	$567.00	$15,880
615.07	LOAM	40	CY	$87.00	$3,480
618.13	SEEDING METHOD NO. 1	3	UNIT	$62.00	$190
619.12	MULCH	3	UNIT	$84.00	$250
621.180	STREET TREE (IN SIDEWALK)	10	EA	$6,000.00	$60,000
621.180	STREET TREE (IN ESPLANADE)	3	EA	$2,250.00	$6,750
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	1,750	LF	$2.00	$3,500
627.75	Y/W PAVEMENT MARKING	2,690	SF	$5.00	$13,450
634.210	PEDESTRIAN LIGHTING	34	EA	$10,000.00	$340,000
890.070	BIKE RACK - 16 BIKES	1	EA	$2,000.00	$2,000
--	BIKE LANE BUFFER - BOLLARDS	35	EA	$500.00	$17,500
--	WASTE RECEPTACLE	4	EA	$1,000.00	$4,000
	25% CONTINGENCY				$813,100
				SUBTOTAL	$4,065,240
659.10	MOBILIZATION	1	LS	$406,600.00	$406,600
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$406,600.00	$406,600
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$40,700.00	$40,700
				CONSTRUCTION TOTAL	$4,919,140
	PRELIMINARY ENGINEERING				$492,000
	CONSTRUCTION ENGINEERING				$393,600
TOTAL					$5,804,740

ESTIMATE #3: York Street - Exchange Street to Hancock Street - 0.03 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	910	CY	$43.00	$39,130
304.10	AGGREGATE SUBB COURSE - GRAVEL	635	CY	$70.00	$44,450
304.14	AGGREGATE BASE COURSE - TYPE A	140	CY	$82.00	$11,480
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	90	TON	$416.00	$37,440
403.213	HOT MIX ASPHALT, 12.5 MM BASE	180	TON	$412.00	$74,160
419.30	SAW CUTTING BITUMINOUS PAVEMENT	400	LF	$16.00	$6,400
525.72	BENCH	7	EA	$2,000.00	$14,000
604.072	CATCH BASIN TYPE A1-C	2	EA	$8,500.00	$17,000
605.11	12" UNDERDRAIN TYPE C	220	LF	$162.00	$35,640
608.07	PLAIN CONCRETE SIDEWALK	265	SY	$194.00	$51,410
609.11	VERTICAL CURB - TYPE 1	355	LF	$141.00	$50,060
621.18	STREET TREE (IN SIDEWALK)	2	EA	$6,000.00	$12,000
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	500	LF	$2.00	$1,000
627.75	Y/W PAVEMENT MARKING	220	SF	$5.00	$1,100
634.21	PEDESTRIAN LIGHTING	10	EA	$10,000.00	$100,000
	25% CONTINGENCY				$123,900
				SUBTOTAL	$619,170
659.10	MOBILIZATION	1	LS	$62,000.00	$62,000
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$62,000.00	$62,000
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$6,200.00	$6,200
				CONSTRUCTION TOTAL	$749,370
	PRELIMINARY ENGINEERING				$75,000
	CONSTRUCTION ENGINEERING				$60,000
TOTAL					$884,370

ESTIMATE #4: State/Hammond Street - Main Street to Exchange Street - 0.10 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	3,050	CY	$43.00	$131,150
304.10	AGGREGATE SUBB COURSE - GRAVEL	2,185	CY	$70.00	$152,950
304.14	AGGREGATE BASE COURSE - TYPE A	435	CY	$82.00	$35,670
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	285	TON	$416.00	$118,560
403.213	HOT MIX ASPHALT, 12.5 MM BASE	470	TON	$412.00	$193,640
525.720	BENCH	2	EA	$2,000.00	$4,000
604.072	CATCH BASIN TYPE A1-C	6	EA	$8,500.00	$51,000
605.11	12" UNDERDRAIN TYPE C	600	LF	$162.00	$97,200
608.07	PLAIN CONCRETE SIDEWALK	1,380	SY	$194.00	$267,720
608.26	CURB RAMP DETECTABLE WARNING FIELD	40	SF	$280.00	$11,200
609.11	VERTICAL CURB - TYPE 1	1,085	LF	$141.00	$152,990
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	12	EA	$567.00	$6,800
621.180	STREET TREE (IN SIDEWALK)	4	EA	$6,000.00	$24,000
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	950	LF	$2.00	$1,900
627.75	Y/W PAVEMENT MARKING	2,850	SF	$5.00	$14,250
634.21	PEDESTRIAN LIGHTING	27	EA	$10,000.00	$270,000
643.62	RECTANGULAR RAPID FLASHING BEACON	1	EA	$20,000.00	$20,000
890.07	BIKE RACK - 16 BIKES	1	EA	$2,000.00	$2,000
--	WASTE RECEPTACLE	2	EA	$1,000.00	$2,000
--	BIKE LANE BUFFER - BOLLARDS	50	EA	$500.00	$25,000
	25% CONTINGENCY				$395,600
				SUBTOTAL	$1,977,630
659.10	MOBILIZATION	1	LS	$197,800.00	$197,800
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$197,800.00	$197,800
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$19,800.00	$19,800
				CONSTRUCTION TOTAL	$2,393,030
	PRELIMINARY ENGINEERING				$239,400
	CONSTRUCTION ENGINEERING				$191,500
TOTAL					$2,823,930

ESTIMATE #5: Central Street - Harlow Street to Hammond Street - 0.12 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	3,860	CY	$43.00	$165,980
304.10	AGGREGATE SUBB COURSE - GRAVEL	2,765	CY	$70.00	$193,550
304.14	AGGREGATE BASE COURSE - TYPE A	550	CY	$82.00	$45,100
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	365	TON	$416.00	$151,840
403.213	HOT MIX ASPHALT, 12.5 MM BASE	725	TON	$412.00	$298,700
525.720	BENCH	10	EA	$2,000.00	$20,000
604.072	CATCH BASIN TYPE A1-C	7	EA	$8,500.00	$59,500
605.11	12" UNDERDRAIN TYPE C	760	LF	$162.00	$123,120
608.07	PLAIN CONCRETE SIDEWALK	1,725	SY	$194.00	$334,650
608.26	CURB RAMP DETECTABLE WARNING FIELD	40	SF	$280.00	$11,200
609.11	VERTICAL CURB - TYPE 1	1,470	LF	$141.00	$207,270
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	8	EA	$567.00	$4,540
621.180	STREET TREE (IN SIDEWALK)	21	EA	$6,000.00	$126,000
621.180	STREET TREE (IN ESPLANADE)	2	EA	$2,250.00	$4,500
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	1,100	LF	$2.00	$2,200
627.75	Y/W PAVEMENT MARKING	4,460	SF	$5.00	$22,300
634.21	PEDESTRIAN LIGHTING	32	EA	$10,000.00	$320,000
643.62	RECTANGULAR RAPID FLASHING BEACON	1	EA	$20,000.00	$20,000
890.07	BIKE RACK - 16 BIKES	1	EA	$2,000.00	$2,000
--	BIKE LANE BUFFER - BOLLARDS	59	EA	$500.00	$29,500
--	WASTE RECEPTACLE	6	EA	$1,000.00	$6,000
	25% CONTINGENCY				$537,000
				SUBTOTAL	$2,684,950
659.10	MOBILIZATION	1	LS	$268,500.00	$268,500
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$268,500.00	$268,500
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$26,900.00	$26,900
				CONSTRUCTION TOTAL	$3,248,850
	PRELIMINARY ENGINEERING				$324,900
	CONSTRUCTION ENGINEERING				$260,000
TOTAL					$3,833,750

ESTIMATE #6: Franklin Street - Harlow Street to Hammond Street - 0.17 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	5,300	CY	$43.00	$227,900
304.10	AGGREGATE SUBB COURSE - GRAVEL	3,735	CY	$70.00	$261,450
304.14	AGGREGATE BASE COURSE - TYPE A	785	CY	$82.00	$64,370
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	520	TON	$416.00	$216,320
403.213	HOT MIX ASPHALT, 12.5 MM BASE	1,035	TON	$412.00	$426,420
525.720	BENCH	4	EA	$2,000.00	$8,000
608.07	PLAIN CONCRETE SIDEWALK	1,820	SY	$194.00	$353,080
608.26	CURB RAMP DETECTABLE WARNING FIELD	100	SF	$280.00	$28,000
609.11	VERTICAL CURB - TYPE 1	20	LF	$141.00	$2,820
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	20	EA	$567.00	$11,340
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	2,300	LF	$2.00	$4,600
627.75	Y/W PAVEMENT MARKING	9,570	SF	$5.00	$47,850
634.21	PEDESTRIAN LIGHTING	42	EA	$10,000.00	$420,000
--	BIKE LANE BUFFER - BOLLARDS	160	EA	$500.00	$80,000
0.00	WASTE RECEPTACLE	2	EA	$1,000.00	$2,000
	25% CONTINGENCY				$538,600
				SUBTOTAL	$2,692,750
659.10	MOBILIZATION	1	LS	$269,300.00	$269,300
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$269,300.00	$269,300
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$27,000.00	$27,000
				CONSTRUCTION TOTAL	$3,258,350
	PRELIMINARY ENGINEERING				$325,900
	CONSTRUCTION ENGINEERING				$260,700
TOTAL					$3,844,950

ESTIMATE #7: Hammond Street - North High Street to Main Street - 0.10 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	2,770	CY	$43.00	$119,110
304.10	AGGREGATE SUBB COURSE - GRAVEL	1,955	CY	$70.00	$136,850
419.30	SAW CUTTING BITUMINOUS PAVEMENT	2,240	LF	$16.00	$35,840
525.72	BENCH	8	EA	$2,000.00	$16,000
604.072	CATCH BASIN TYPE A1-C	7	EA	$8,500.00	$59,500
605.11	12" UNDERDRAIN TYPE C	600	LF	$162.00	$97,200
608.07	PLAIN CONCRETE SIDEWALK	1,010	SY	$194.00	$195,940
608.26	CURB RAMP DETECTABLE WARNING FIELD	60	SF	$280.00	$16,800
609.11	VERTICAL CURB - TYPE 1	910	LF	$141.00	$128,310
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	18	EA	$567.00	$10,300
621.180	STREET TREE (IN SIDEWALK)	12	EA	$6,000.00	$72,000
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	1,200	LF	$2.00	$2,400
627.75	Y/W PAVEMENT MARKING	5,270	SF	$5.00	$26,400
634.21	PEDESTRIAN LIGHTING	24	EA	$10,000.00	$240,000
643.62	RECTANGULAR RAPID FLASHING BEACON	1	EA	$20,000.00	$20,000
890.07	BIKE RACK - 16 BIKES	1	EA	$2,000.00	$2,000
--	BIKE LANE BUFFER - BOLLARDS	68	EA	$500.00	$34,000
--	WASTE RECEPTACLE	6	EA	$1,000.00	$6,000
	25% CONTINGENCY				$303,200
				SUBTOTAL	$1,521,850
659.10	MOBILIZATION	1	LS	$152,200.00	$152,200
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$152,200.00	$152,200
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$15,300.00	$15,300
				CONSTRUCTION TOTAL	$1,841,550
	PRELIMINARY ENGINEERING				$184,200
	CONSTRUCTION ENGINEERING				$147,400
TOTAL					$2,173,150

ESTIMATE #8: Main Street - State Street to Railroad Street - 0.46 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	18,530	CY	$43.00	$796,790
304.10	AGGREGATE SUBB COURSE - GRAVEL	12,930	CY	$70.00	$905,100
419.30	SAW CUTTING BITUMINOUS PAVEMENT	11,930	LF	$16.00	$190,880
525.72	BENCH	22	EA	$2,000.00	$44,000
604.072	CATCH BASIN TYPE A1-C	20	EA	$8,500.00	$170,000
605.11	12" UNDERDRAIN TYPE C	2,930	LF	$162.00	$474,660
608.07	PLAIN CONCRETE SIDEWALK	5,180	SY	$194.00	$1,004,920
608.26	CURB RAMP DETECTABLE WARNING FIELD	430	SF	$280.00	$120,400
609.11	VERTICAL CURB - TYPE 1	5,745	LF	$141.00	$810,050
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	98	EA	$567.00	$55,600
615.07	LOAM	130	CY	$87.00	$11,400
618.13	SEEDING METHOD NO. 1	11	UNIT	$62.00	$700
619.12	MULCH	11	UNIT	$84.00	$1,000
621.18	STREET TREE (IN SIDEWALK)	43	EA	$6,000.00	$258,000
621.18	STREET TREE (IN ESPLANADE)	13	EA	$2,250.00	$29,250
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	8,100	LF	$2.00	$16,200
627.75	Y/W PAVEMENT MARKING	16,100	SF	$5.00	$80,500
634.21	PEDESTRIAN LIGHTING	84	EA	$10,000.00	$840,000
890.07	BIKE RACK - 16 BIKES	2	EA	$2,000.00	$4,000
--	BIKE LANE BUFFER - BOLLARDS	173	EA	$500.00	$86,500
0.00	WASTE RECEPTACLE	15	EA	$1,000.00	$15,000
	25% CONTINGENCY				$1,478,800
				SUBTOTAL	$7,393,750
659.10	MOBILIZATION	1	LS	$739,400.00	$739,400
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$739,400.00	$739,400
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$74,000.00	$74,000
				CONSTRUCTION TOTAL	$8,946,550
	PRELIMINARY ENGINEERING				$894,700
	CONSTRUCTION ENGINEERING				$715,800
TOTAL					$10,557,050

ESTIMATE #9: Union Street - Main Street to Second Street - 0.10 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	2,390	CY	$43.00	$102,770
304.10	AGGREGATE SUBB COURSE - GRAVEL	1,670	CY	$70.00	$116,900
304.14	AGGREGATE BASE COURSE - TYPE A	360	CY	$82.00	$29,520
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	235	TON	$416.00	$97,760
403.213	HOT MIX ASPHALT, 12.5 MM BASE	470	TON	$412.00	$193,640
419.30	SAW CUTTING BITUMINOUS PAVEMENT	2,160	LF	$16.00	$34,560
525.72	BENCH	2	EA	$2,000.00	$4,000
604.072	CATCH BASIN TYPE A1-C	6	EA	$8,500.00	$51,000
605.11	12" UNDERDRAIN TYPE C	580	LF	$162.00	$93,960
608.07	PLAIN CONCRETE SIDEWALK	750	SY	$194.00	$145,500
608.26	CURB RAMP DETECTABLE WARNING FIELD	60	SF	$280.00	$16,800
609.11	VERTICAL CURB - TYPE 1	885	LF	$141.00	$124,800
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	12	EA	$567.00	$6,900
615.07	LOAM	50	CY	$87.00	$4,400
618.13	SEEDING METHOD NO. 1	4	UNIT	$62.00	$300
619.12	MULCH	4	UNIT	$84.00	$400
621.18	STREET TREE (IN ESPLANADE)	15	EA	$2,250.00	$33,750
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	1,050	LF	$2.00	$2,100
627.75	Y/W PAVEMENT MARKING	400	SF	$5.00	$2,000
634.21	PEDESTRIAN LIGHTING	22	EA	$10,000.00	$220,000
0.00	WASTE RECEPTACLE	2	EA	$1,000.00	$2,000
	25% CONTINGENCY				$320,800
				SUBTOTAL	$1,603,860
659.10	MOBILIZATION	1	LS	$160,400.00	$160,400
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$160,400.00	$160,400
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$16,100.00	$16,100
				CONSTRUCTION TOTAL	$1,940,760
	PRELIMINARY ENGINEERING				$194,100
	CONSTRUCTION ENGINEERING				$155,300
TOTAL					$2,290,160

ESTIMATE #10: High Street - Union Street to Middle Street - 0.03 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	20	CY	$43.00	$860
304.10	AGGREGATE SUBB COURSE - GRAVEL	20	CY	$70.00	$1,400
419.30	SAW CUTTING BITUMINOUS PAVEMENT	460	LF	$16.00	$7,360
604.072	CATCH BASIN TYPE A1-C	3	EA	$8,500.00	$25,500
605.11	12" UNDERDRAIN TYPE C	120	LF	$162.00	$19,440
608.07	PLAIN CONCRETE SIDEWALK	60	SY	$194.00	$11,640
608.26	CURB RAMP DETECTABLE WARNING FIELD	20	SF	$280.00	$5,600
609.11	VERTICAL CURB - TYPE 1	170	LF	$141.00	$23,970
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	5	EA	$567.00	$2,840
615.07	LOAM	30	CY	$87.00	$2,610
618.13	SEEDING METHOD NO. 1	2	UNIT	$62.00	$120
619.12	MULCH	2	UNIT	$84.00	$170
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	250	LF	$2.00	$500
627.75	Y/W PAVEMENT MARKING	130	SF	$5.00	$650
	25% CONTINGENCY				$25,700
				SUBTOTAL	$128,360
659.10	MOBILIZATION	1	LS	$12,900.00	$12,900
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$12,900.00	$12,900
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$1,300.00	$1,300
				CONSTRUCTION TOTAL	$155,460
	PRELIMINARY ENGINEERING				$15,600
	CONSTRUCTION ENGINEERING				$12,500
TOTAL					$183,560

ESTIMATE #11: Broad Street/Merchant Plaza - Woonerf Pavers - 0.08 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	2,140	CY	$43.00	$92,020
304.10	AGGREGATE SUBB COURSE - GRAVEL	2,140	CY	$70.00	$149,800
304.14	AGGREGATE BASE COURSE - TYPE A	360	CY	$82.00	$29,520
604.072	CATCH BASIN TYPE A1-C	5	EA	$8,500.00	$42,500
605.11	12" UNDERDRAIN TYPE C	800	LF	$162.00	$129,600
643.62	RECTANGULAR RAPID FLASHING BEACON	1	EA	$20,000.00	$20,000
643.80	SIGNAL REMOVAL AT: MAIN/BROAD ST	1	EA	$150,000.00	$150,000
--	CONCRETE PAVER SIDEWALK/STREET - WOONERF	3,210	SY	$205.00	$658,050
	25% CONTINGENCY				$317,900
				SUBTOTAL	$1,589,390
659.10	MOBILIZATION	1	LS	$159,000.00	$159,000
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$159,000.00	$159,000
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$15,900.00	$15,900
				CONSTRUCTION TOTAL	$1,923,290
	PRELIMINARY ENGINEERING				$192,400
	CONSTRUCTION ENGINEERING				$154,000
TOTAL					$2,269,690

ESTIMATE #12: Broad Street - Water Street to Washington Street - 0.04 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	790	CY	$43.00	$33,970
304.10	AGGREGATE SUBB COURSE - GRAVEL	555	CY	$70.00	$38,850
304.14	AGGREGATE BASE COURSE - TYPE A	120	CY	$82.00	$9,840
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	80	TON	$416.00	$33,280
403.213	HOT MIX ASPHALT, 12.5 MM BASE	155	TON	$412.00	$63,860
419.30	SAW CUTTING BITUMINOUS PAVEMENT	860	LF	$16.00	$13,760
604.072	CATCH BASIN TYPE A1-C	4	EA	$8,500.00	$34,000
605.11	12" UNDERDRAIN TYPE C	240	LF	$162.00	$38,880
608.07	PLAIN CONCRETE SIDEWALK	260	SY	$194.00	$50,440
608.26	CURB RAMP DETECTABLE WARNING FIELD	10	SF	$280.00	$2,800
609.11	VERTICAL CURB - TYPE 1	300	LF	$141.00	$42,300
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	4	EA	$567.00	$2,270
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	350	LF	$2.00	$700
627.75	Y/W PAVEMENT MARKING	190	SF	$5.00	$950
	25% CONTINGENCY				$91,500
				SUBTOTAL	$457,400
659.10	MOBILIZATION	1	LS	$45,800.00	$45,800
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$45,800.00	$45,800
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$4,600.00	$4,600
				CONSTRUCTION TOTAL	$553,600
	PRELIMINARY ENGINEERING				$55,400
	CONSTRUCTION ENGINEERING				$44,300
TOTAL					$653,300

ESTIMATE #13: Washington Street - Broad Street to Kenduskeag Plaza West - 0.03 miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	70	CY	$43.00	$3,010
304.10	AGGREGATE SUBB COURSE - GRAVEL	140	CY	$70.00	$9,800
419.30	SAW CUTTING BITUMINOUS PAVEMENT	300	LF	$16.00	$4,800
608.07	PLAIN CONCRETE SIDEWALK	210	SY	$194.00	$40,740
608.26	CURB RAMP DETECTABLE WARNING FIELD	20	SF	$280.00	$5,600
609.11	VERTICAL CURB - TYPE 1	300	LF	$141.00	$42,300
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	4	EA	$567.00	$2,270
	25% CONTINGENCY				$27,200
				SUBTOTAL	$135,720
659.10	MOBILIZATION	1	LS	$13,600.00	$13,600
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$13,600.00	$13,600
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$1,400.00	$1,400
				CONSTRUCTION TOTAL	$164,320
	PRELIMINARY ENGINEERING				$16,500
	CONSTRUCTION ENGINEERING				$13,200
TOTAL					$194,020

ESTIMATE 14: Intersection of Center/Park/Somerset Street

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.200	COMMON EXCAVATION	30	CY	$43.00	$1,290
304.10	AGGREGATE SUBB COURSE - GRAVEL	25	CY	$70.00	$1,750
403.209	HOT MIX ASPHALT, 9.5 MM INCID.(SW,DRIVES)	10	TON	$502.00	$5,020
419.30	SAW CUTTING BITUMINOUS PAVEMENT	245	LF	$16.00	$3,920
604.072	CATCH BASIN TYPE A1-C	1	EA	$8,500.00	$8,500
605.11	12" UNDERDRAIN TYPE C	30	LF	$162.00	$4,860
608.26	CURB RAMP DETECTABLE WARNING FIELD	40	SF	$280.00	$11,200
609.11	VERTICAL CURB - TYPE 1	165	LF	$141.00	$23,270
609.221	TERMINAL CURB TYPE 1	24	LF	$142.00	$3,410
615.07	LOAM	12	CY	$87.00	$1,100
618.13	SEEDING METHOD NO. 1	1	UNIT	$62.00	$100
619.12	MULCH	1	UNIT	$84.00	$100
627.75	Y/W PAVEMENT MARKING	370	SF	$5.00	$1,900
643.62	RECTANGULAR RAPID FLASHING BEACON	1	EA	$20,000.00	$20,000
	25% CONTINGENCY				$21,700
				SUBTOTAL	$108,120
659.10	MOBILIZATION	1	LS	$10,900.00	$10,900
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$10,900.00	$10,900
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$1,100.00	$1,100
				CONSTRUCTION TOTAL	$131,020
	PRELIMINARY ENGINEERING				$13,200
	CONSTRUCTION ENGINEERING				$10,500
TOTAL					$154,720

ESTIMATE #15: Intersection of Main/Water/Middle Street

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
627.75	Y/W PAVEMENT MARKING	380	SF	$5.00	$1,900
643.80	SIGNAL REPLACEMENT AT: MAIN/WATER ST	1	LS	$400,000.00	$400,000
	25% CONTINGENCY				$108,400
				SUBTOTAL	$541,770
659.10	MOBILIZATION	1	LS	$54,200.00	$54,200
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$54,200.00	$54,200
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$5,500.00	$5,500
				CONSTRUCTION TOTAL	$655,670
	PRELIMINARY ENGINEERING				$65,600
	CONSTRUCTION ENGINEERING				$52,500
TOTAL					$773,770

ESTIMATE #16: Intersection of Harlow/Center/Central Street - Option A

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
304.10	AGGREGATE SUBB COURSE - GRAVEL	15	CY	$70.00	$1,050
608.08	REINFORCED CONCRETE SIDEWALK	50	SY	$194.00	$9,700
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
609.34	VERTICAL CURB - TYPE 5	90	LF	$170.00	$15,300
627.75	Y/W PAVEMENT MARKING	240	SF	$5.00	$1,200
643.80	SIGNAL REPLACEMENT AT: HARLOW/CENTRAL ST	1	LS	$300,000.00	$300,000
	25% CONTINGENCY				$87,000
				SUBTOTAL	$434,970
659.10	MOBILIZATION	1	LS	$43,500.00	$43,500
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$43,500.00	$43,500
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$4,400.00	$4,400
				CONSTRUCTION TOTAL	$526,370
	PRELIMINARY ENGINEERING				$52,700
	CONSTRUCTION ENGINEERING				$42,200
TOTAL					$621,270

ESTIMATE #17: Intersection of Harlow/Center/Central Street - Option B

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	1,980	CY	$43.00	$85,140
304.10	AGGREGATE SUBB COURSE - GRAVEL	1,390	CY	$70.00	$97,300
304.14	AGGREGATE BASE COURSE - TYPE A	295	CY	$82.00	$24,190
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	195	TON	$416.00	$81,120
403.213	HOT MIX ASPHALT, 12.5 MM BASE	390	TON	$412.00	$160,680
419.30	SAW CUTTING BITUMINOUS PAVEMENT	2,280	LF	$16.00	$36,480
502.350	STRUCTURAL CONCRETE - STAMPED, COLORED	250	SY	$600.00	$150,000
604.072	CATCH BASIN TYPE A1-C	7	EA	$8,500.00	$59,500
605.11	12" UNDERDRAIN TYPE C	520	LF	$162.00	$84,240
608.07	PLAIN CONCRETE SIDEWALK	630	SY	$194.00	$122,220
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.11	VERTICAL CURB - TYPE 1	850	LF	$141.00	$119,850
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
609.34	VERTICAL CURB - TYPE 5	265	LF	$170.00	$45,050
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	400	LF	$2.00	$800
627.75	Y/W PAVEMENT MARKING	480	SF	$5.00	$2,400
643.62	RECTANGULAR RAPID FLASHING BEACON	4	EA	$20,000.00	$80,000
	25% CONTINGENCY				$295,200
				SUBTOTAL	$1,475,640
659.10	MOBILIZATION	1	LS	$147,600.00	$147,600
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$295,200.00	$295,200
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$14,800.00	$14,800
				CONSTRUCTION TOTAL	$1,933,240
	PRELIMINARY ENGINEERING				$386,700
	CONSTRUCTION ENGINEERING				$154,700
TOTAL					$2,474,640

ESTIMATE #18: Intersection of Harlow/Center/Central Street - Option C

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
627.75	Y/W PAVEMENT MARKING	240	SF	$5.00	$1,200
643.80	SIGNAL REPLACEMENT AT: HARLOW/CENTRAL ST	1	LS	$400,000.00	$400,000
	25% CONTINGENCY				$108,200
				SUBTOTAL	$540,870
659.10	MOBILIZATION	1	LS	$54,100.00	$54,100
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$54,100.00	$54,100
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$5,500.00	$5,500
				CONSTRUCTION TOTAL	$654,570
	PRELIMINARY ENGINEERING				$65,500
	CONSTRUCTION ENGINEERING				$52,400
TOTAL					$772,470

ESTIMATE #19: Intersection of Harlow/State/Exchange Street - Option A

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
608.26	CURB RAMP DETECTABLE WARNING FIELD	305	SF	$280.00	$85,400
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	8	EA	$567.00	$4,540
627.75	Y/W PAVEMENT MARKING	750	SF	$5.00	$3,750
643.80	SIGNAL REPLACEMENT AT: HARLOW/STATE ST	1	EA	$400,000.00	$400,000
	25% CONTINGENCY				$123,500
				SUBTOTAL	$617,190
659.10	MOBILIZATION	1	LS	$61,800.00	$61,800
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$61,800.00	$61,800
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$6,200.00	$6,200
				CONSTRUCTION TOTAL	$746,990
	PRELIMINARY ENGINEERING				$74,700
	CONSTRUCTION ENGINEERING				$59,800
TOTAL					$881,490

ESTIMATE #20: Intersection of Harlow/State/Exchange Street - Option B

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	2,470	CY	$43.00	$106,210
304.10	AGGREGATE SUBB COURSE - GRAVEL	1,715	CY	$70.00	$120,050
304.14	AGGREGATE BASE COURSE - TYPE A	375	CY	$82.00	$30,750
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	250	TON	$416.00	$104,000
403.213	HOT MIX ASPHALT, 12.5 MM BASE	495	TON	$412.00	$203,940
419.30	SAW CUTTING BITUMINOUS PAVEMENT	1,800	LF	$16.00	$28,800
502.350	STRUCTURAL CONCRETE - STAMPED, COLORED	200	SY	$600.00	$120,000
604.072	CATCH BASIN TYPE A1-C	8	EA	$8,500.00	$68,000
605.11	12" UNDERDRAIN TYPE C	420	LF	$162.00	$68,040
608.07	PLAIN CONCRETE SIDEWALK	660	SY	$194.00	$128,040
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.11	VERTICAL CURB - TYPE 1	515	LF	$141.00	$72,620
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
609.34	VERTICAL CURB - TYPE 5	300	LF	$170.00	$51,000
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	800	LF	$2.00	$1,600
627.75	Y/W PAVEMENT MARKING	120	SF	$5.00	$600
643.62	RECTANGULAR RAPID FLASHING BEACON	4	EA	$20,000.00	$80,000
	25% CONTINGENCY				$303,800
				SUBTOTAL	$1,518,920
659.10	MOBILIZATION	1	LS	$151,900.00	$151,900
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$151,900.00	$151,900
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$15,200.00	$15,200
				CONSTRUCTION TOTAL	$1,837,920
	PRELIMINARY ENGINEERING				$183,800
	CONSTRUCTION ENGINEERING				$147,100
TOTAL					$2,168,820

ESTIMATE #21: Intersection of Harlow/State/Exchange Street - Option C

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
608.26	CURB RAMP DETECTABLE WARNING FIELD	305	SF	$280.00	$85,400
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	8	EA	$567.00	$4,540
627.75	Y/W PAVEMENT MARKING	750	SF	$5.00	$3,750
643.80	SIGNAL REPLACEMENT AT: HARLOW/STATE ST	1	EA	$400,000.00	$400,000
	25% CONTINGENCY				$123,500
				SUBTOTAL	$617,190
659.10	MOBILIZATION	1	LS	$61,800.00	$61,800
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$61,800.00	$61,800
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$6,200.00	$6,200
				CONSTRUCTION TOTAL	$746,990
	PRELIMINARY ENGINEERING				$74,700
	CONSTRUCTION ENGINEERING				$59,800
TOTAL					$881,490

ESTIMATE #22: Intersection of Hammond/Central/Main Street - Option A

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
608.26	CURB RAMP DETECTABLE WARNING FIELD	120	SF	$280.00	$33,600
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
627.75	Y/W PAVEMENT MARKING	400	SF	$5.00	$2,000
643.80	SIGNAL REPLACEMENT AT: HAMMOND/MAIN ST	1	LS	$350,000.00	$350,000
	25% CONTINGENCY				$98,700
				SUBTOTAL	$493,370
659.10	MOBILIZATION	1	LS	$49,400.00	$49,400
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$49,400.00	$49,400
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$5,000.00	$5,000
				CONSTRUCTION TOTAL	$597,170
	PRELIMINARY ENGINEERING				$59,800
	CONSTRUCTION ENGINEERING				$47,800
TOTAL					$704,770

ESTIMATE #23: Intersection of Hammond/Central/Main Street - Option B

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	2,420	CY	$43.00	$104,060
304.10	AGGREGATE SUBB COURSE - GRAVEL	1,710	CY	$70.00	$119,700
304.14	AGGREGATE BASE COURSE - TYPE A	360	CY	$82.00	$29,520
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	235	TON	$416.00	$97,760
403.213	HOT MIX ASPHALT, 12.5 MM BASE	470	TON	$412.00	$193,640
419.30	SAW CUTTING BITUMINOUS PAVEMENT	1,980	LF	$16.00	$31,680
502.350	STRUCTURAL CONCRETE - STAMPED, COLORED	300	SY	$600.00	$180,000
604.072	CATCH BASIN TYPE A1-C	8	EA	$8,500.00	$68,000
605.11	12" UNDERDRAIN TYPE C	440	LF	$162.00	$71,280
608.07	PLAIN CONCRETE SIDEWALK	860	SY	$194.00	$166,840
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.11	VERTICAL CURB - TYPE 1	470	LF	$141.00	$66,270
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
609.34	VERTICAL CURB - TYPE 5	485	LF	$170.00	$82,450
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	950	LF	$2.00	$1,900
627.75	Y/W PAVEMENT MARKING	570	SF	$5.00	$2,850
643.62	RECTANGULAR RAPID FLASHING BEACON	4	EA	$20,000.00	$80,000
	25% CONTINGENCY				$331,900
				SUBTOTAL	$1,659,320
659.10	MOBILIZATION	1	LS	$166,000.00	$166,000
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$166,000.00	$166,000
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$16,600.00	$16,600
				CONSTRUCTION TOTAL	$2,007,920
	PRELIMINARY ENGINEERING				$200,800
	CONSTRUCTION ENGINEERING				$160,700
TOTAL					$2,369,420

ESTIMATE #24: Intersection of Hammond/Central/Main Street - Option C

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
608.26	CURB RAMP DETECTABLE WARNING FIELD	120	SF	$280.00	$33,600
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
627.75	Y/W PAVEMENT MARKING	400	SF	$5.00	$2,000
643.80	SIGNAL REPLACEMENT AT: HAMMOND/MAIN ST	1	LS	$400,000.00	$400,000
	25% CONTINGENCY				$111,200
				SUBTOTAL	$555,870
659.10	MOBILIZATION	1	LS	$55,600.00	$55,600
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$55,600.00	$55,600
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$5,600.00	$5,600
				CONSTRUCTION TOTAL	$672,670
	PRELIMINARY ENGINEERING				$67,300
	CONSTRUCTION ENGINEERING				$53,900
TOTAL					$793,870

ESTIMATE #25: Intersection of Broad/Independent/Washington Street - Option A

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	80	CY	$43.00	$3,440
304.10	AGGREGATE SUBB COURSE - GRAVEL	80	CY	$70.00	$5,600
419.30	SAW CUTTING BITUMINOUS PAVEMENT	760	LF	$16.00	$12,160
604.072	CATCH BASIN TYPE A1-C	1	EA	$8,500.00	$8,500
605.11	12" UNDERDRAIN TYPE C	30	LF	$162.00	$4,860
608.07	PLAIN CONCRETE SIDEWALK	230	SY	$194.00	$44,620
608.26	CURB RAMP DETECTABLE WARNING FIELD	80	SF	$280.00	$22,400
609.11	VERTICAL CURB - TYPE 1	665	LF	$141.00	$93,770
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	16	EA	$567.00	$9,070
615.07	LOAM	90	CY	$87.00	$7,830
618.13	SEEDING METHOD NO. 1	7	UNIT	$62.00	$430
619.12	MULCH	7	UNIT	$84.00	$590
627.75	Y/W PAVEMENT MARKING	430	SF	$5.00	$2,150
	25% CONTINGENCY				$53,900
				SUBTOTAL	$190,140
659.10	MOBILIZATION	1	LS	$19,100.00	$19,100
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$19,100.00	$19,100
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$2,000.00	$2,000
				CONSTRUCTION TOTAL	$230,340
	PRELIMINARY ENGINEERING				$23,100
	CONSTRUCTION ENGINEERING				$18,500
TOTAL					$271,940

ESTIMATE #26: Intersection of Broad/Washington/Independent Street - Option B

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	3,970	CY	$43.00	$170,710
304.10	AGGREGATE SUBB COURSE - GRAVEL	2,695	CY	$70.00	$188,650
304.14	AGGREGATE BASE COURSE - TYPE A	635	CY	$82.00	$52,070
403.208	HOT MIX ASPHALT, 12.5 MM SURFACE	420	TON	$416.00	$174,720
403.213	HOT MIX ASPHALT, 12.5 MM BASE	840	TON	$412.00	$346,080
419.30	SAW CUTTING BITUMINOUS PAVEMENT	3,480	LF	$16.00	$55,680
502.350	STRUCTURAL CONCRETE - STAMPED, COLORED	400	SY	$600.00	$240,000
604.072	CATCH BASIN TYPE A1-C	7	EA	$8,500.00	$59,500
605.11	12" UNDERDRAIN TYPE C	600	LF	$162.00	$97,200
608.07	PLAIN CONCRETE SIDEWALK	490	SY	$194.00	$95,060
608.26	CURB RAMP DETECTABLE WARNING FIELD	110	SF	$280.00	$30,800
609.11	VERTICAL CURB - TYPE 1	1,815	LF	$141.00	$255,920
609.34	VERTICAL CURB TYPE 5	340	LF	$170.00	$57,800
609.238	TERMINAL CURB TYPE 1 - 8 FOOT	21	EA	$567.00	$11,910
615.07	LOAM	60	CY	$87.00	$5,220
618.13	SEEDING METHOD NO. 1	5	UNIT	$62.00	$310
619.12	MULCH	5	UNIT	$84.00	$420
627.733	4" W/Y PAINTED PAVEMENT MARKING LINE	1,450	LF	$2.00	$2,900
627.75	Y/W PAVEMENT MARKING	960	SF	$5.00	$4,800
643.62	RECTANGULAR RAPID FLASHING BEACON	4	EA	$20,000.00	$80,000
	25% CONTINGENCY				$482,500
				SUBTOTAL	$2,412,250
659.10	MOBILIZATION	1	LS	$241,300.00	$241,300
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$241,300.00	$241,300
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$24,200.00	$24,200
				CONSTRUCTION TOTAL	$2,919,050
	PRELIMINARY ENGINEERING				$292,000
	CONSTRUCTION ENGINEERING				$233,600
TOTAL					$3,444,650

ESTIMATE #27: Waterfront Park - Kenduskeag Plaza West - 0.18 Miles

PRELIMINARY PROBABLE CONSTRUCTION COST ESTIMATE

2024

ITEM NO.	DESCRIPTION	QUANT.	UNIT	PRICE	AMOUNT
203.20	COMMON EXCAVATION	1,187	CY	$43.00	$51,040
525.72	BENCH	20	EA	$2,000.00	$40,000
609.11	VERTICAL CURB - TYPE 1	861	LF	$141.00	$121,410
621.180	STREET TREE (IN SIDEWALK)	5	EA	$6,000.00	$30,000
634.210	PEDESTRIAN LIGHTING	24	EA	$10,000.00	$240,000
890.07	BIKE RACK - 16 BIKES	1	EA	$2,000.00	$2,000
--	CONCRETE UNIT PAVER	14,638	SY	$50.00	$731,900
--	ADA CONNECTION ALLOWANCE (YORK & HAMMOND)	1	EA	$30,000.00	$30,000
--	PLANTING BED	910	SY	$370.00	$336,740
--	TREE (IN PLANTING BED)	40	EA	$1,000.00	$40,000
--	WASTE RECEPTACLE	10	EA	$1,000.00	$10,000
	25% CONTINGENCY				$408,273
				SUBTOTAL	$2,041,400
659.10	MOBILIZATION	1	LS	$204,140.00	$204,140
652.39	WORK ZONE TRAFFIC CONTROL	1	LS	$204,140.00	$204,140
656.75	TEMP SOIL EROSION & WATER POLLUTION CONTROL	1	LS	$20,414.00	$20,414
				CONSTRUCTION TOTAL	$2,470,094
	PRELIMINARY ENGINEERING				$247,009
	CONSTRUCTION ENGINEERING				$197,608
TOTAL					$2,914,711