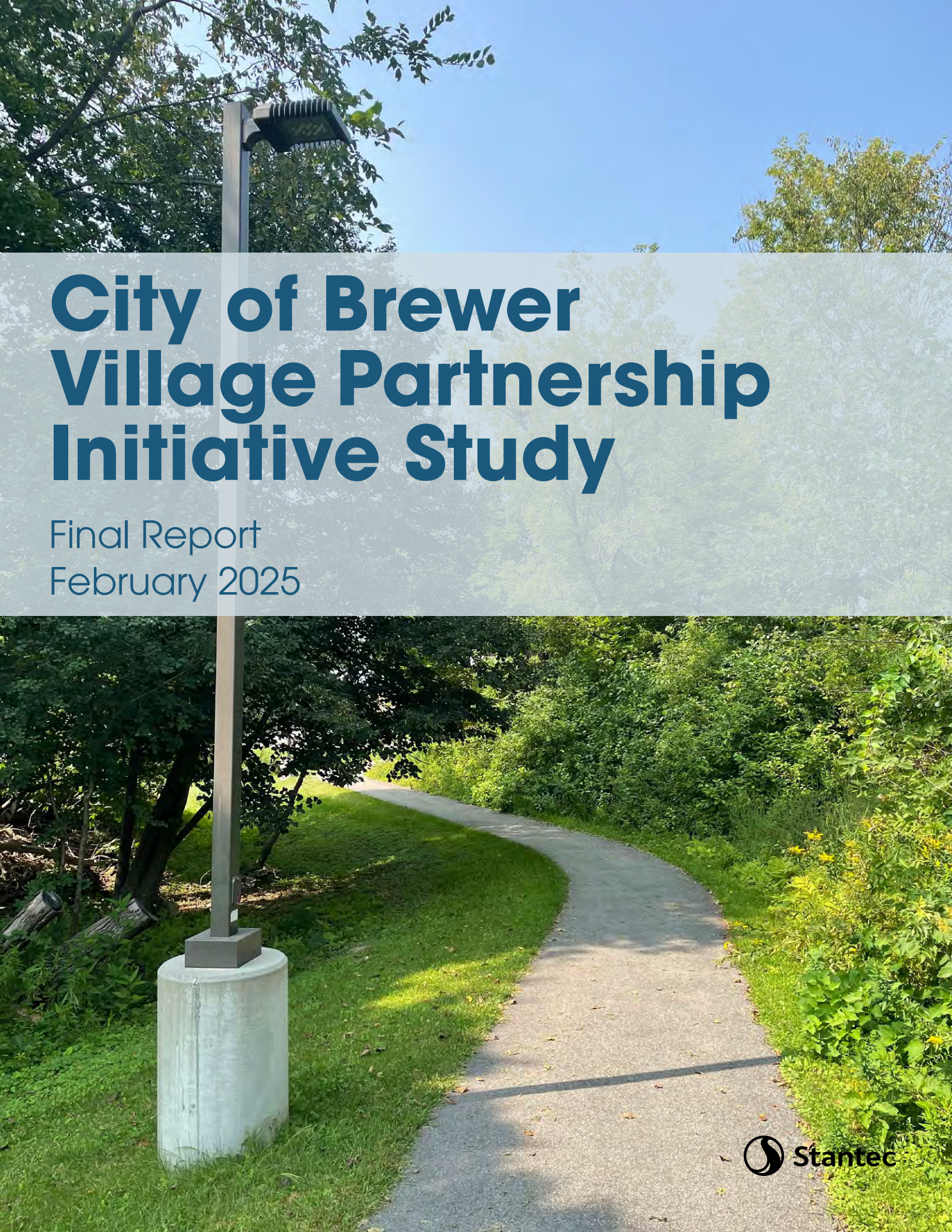

City of Brewer Village Partnership Initiative Study

Final Report
February 2025

Stantec


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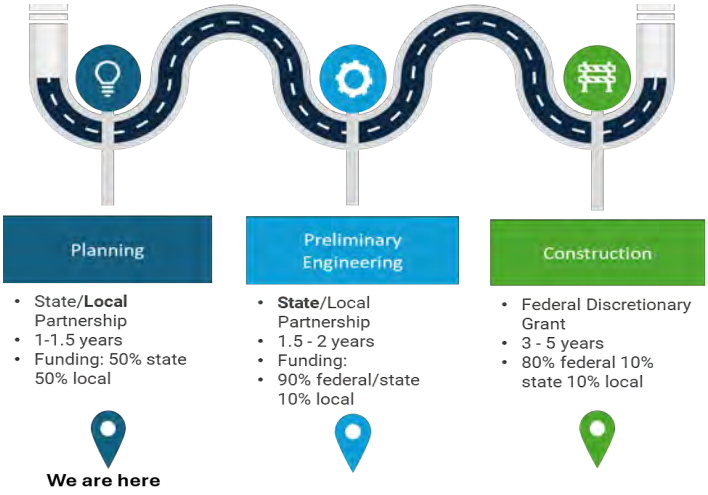
1. Executive Summary

This report summarizes the results of the Village Partnership Initiative (VPI) Study performed for the City of Brewer. Stantec was retained by the city in January 2024 to assist with their Maine Department of Transportation (MaineDOT) funded study of transportation and land use. This program began in 2022 and it is focused on transformative investments in Maine village and downtown centers to reinvest and revitalize the state's iconic village centers. VPI projects look to make once-in-a-lifetime investments in the places where people meet, shop, and do business. These investments strive to improve pedestrian, bicycle, and vehicular safety, create an incentive for businesses to want to locate, people to live, and others to visit and possibly relocate.

This study occurred over approximately a year and included an extensive public engagement component, an analysis of existing and future conditions, and proposed recommendations for each of three Focus Areas identified through the course of the study.



Study Area

The original Study Area includes Wilson Street from the intersection of North Main Street to Vista Way, North Main Street from the intersection of Wilson Street to Holyoke Street, Center Street South of North Main Street, and includes Jordan Street, Washington Street, Somerset Street, and State Street from the intersection of North Main Street to Highland Street. However, over the course of the study, the area was expanded based on feedback from the Study Team to include North Main Street between Holyoke Street and Chamberlain Street and the northern section of Center Street.

Purpose and Need

The following Purpose and Need statement was endorsed by the Study Team:

» Improve **safety and accessibility** for all users (walkers, bikers, drivers, and transit riders).

» Expand **active transportation** connections and facilities.

» Support **future growth and economic development** by enhancing the look, feel, and character of the streetscape.

Public Engagement

This study included an extensive public engagement component. There were two recorded public meetings, a map-based community survey using the Social Pinpoint platform, and roundtable discussions for members of the public to share their comments and concerns with the Study Team.

The Social pinpoint survey was conducted in May 2024 and allowed users to provide location-specific feedback by placing a pin on the map and entering a comment about that area. Users could also "like" a comment entered by another user, which gave the Study Team additional insights to help prioritize focus areas and improvements.

The first public meeting was held in September, 2024. At these meetings, the Stantec Team gave a brief presentation and then answered questions and solicited feedback from the public regarding desired street improvements, intersection concerns and ideas, and preferred cross-sections of significant corridors. Key takeaways from the Public meeting included:

- Bicycle lanes and bus shelters were the most requested improvements.
- Additional on-street parking was not a high priority.
- Pedestrian crossings are challenging across the board.
- There is a strong desire for a formal pedestrian crossing on Center Street.
- Existing RRFB's (push button flashing lights at a crosswalk) are very popular.
- On-street bike facilities are desirable, even near the Riverwalk.
- Separated bicycle facilities were preferred.
- Alternatives with street trees were generally more popular.

The second public meeting was held in November, 2024. At this meeting, the Stantec Team reviewed the study process to date and shared the draft recommendations with the public for feedback. The presentation and posters of the draft recommendations were also posted on the city's website for additional feedback.

Public Meeting #1 - September 2024

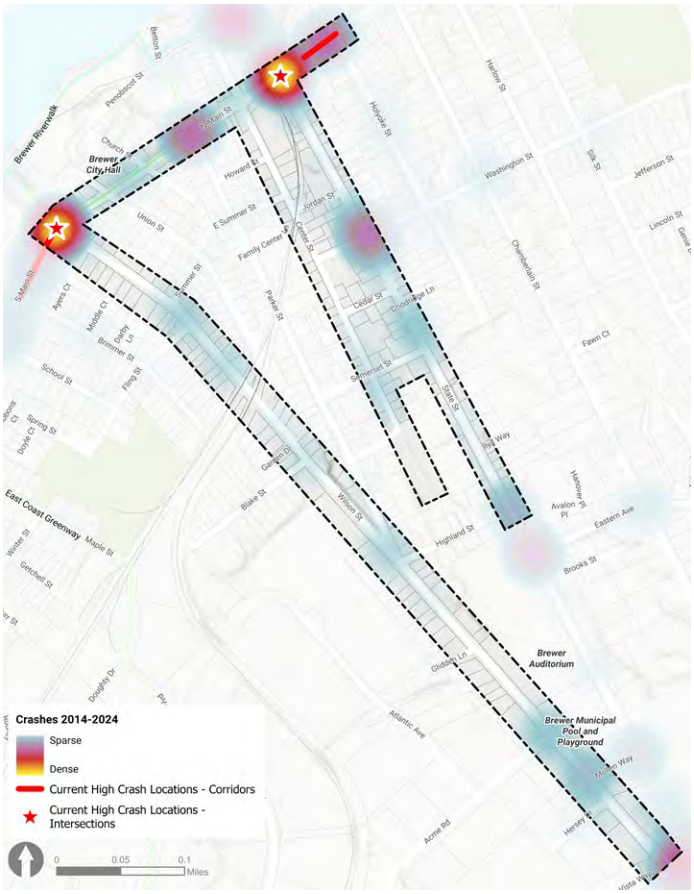
Existing Conditions

In order to fully understand the Study Area, Stantec completed an Available Data Summary report, including an in depth review of available plans, reports, and data. The full report can be found in **Appendix A**. Stantec also completed an Assessment of Current Conditions, which includes an analysis of multimodal traffic, road safety and land uses, which is available in **Appendix B**.

Future Conditions

Stantec estimated future traffic volumes to ensure the recommendations both meet the study's goals and account for changes in traffic volumes to the year 2045. The full future conditions memorandum can be found in **Appendix C**.

Stantec reviewed publicly available resources and MaineDOT traffic models to project traffic flow to 2045 and evaluated two potential future outlooks of traffic volumes in the city: A standard MaineDOT-based Regional Growth outlook and a local outlook. Stantec recommends planning for infrastructure evaluations and improvements by using the Regional Growth model to estimate future traffic volumes because this growth rate is larger than the local outlook. Additionally, the I-395 extension planned for completion in 2025 is anticipated to reduce traffic on North Main Street by 12.4% About one year after the completion of the I-395 Extension, MaineDOT will be collecting traffic data throughout the city. This data will be used to assess the changes in traffic flows in Brewer and can be used to re-evaluate the recommendations of this study.



High Crash Locations and Heatmap of Crashes 2014-2024 in the Study Area

Recommendations

Drawing upon the public engagement, existing conditions analysis and future Regional Growth conditions evaluation, Focus Areas were identified that represent locations within the Study Area where transformational change is most needed and desired:

- **Focus Area 1:** North Main Street from State Street to Chamberlain Street
- **Focus Area 2:** Center Street Corridor and North Main Street Intersection
- **Focus Area 3:** Wilson Street Corridor and North Main Street / South Main Street Intersection

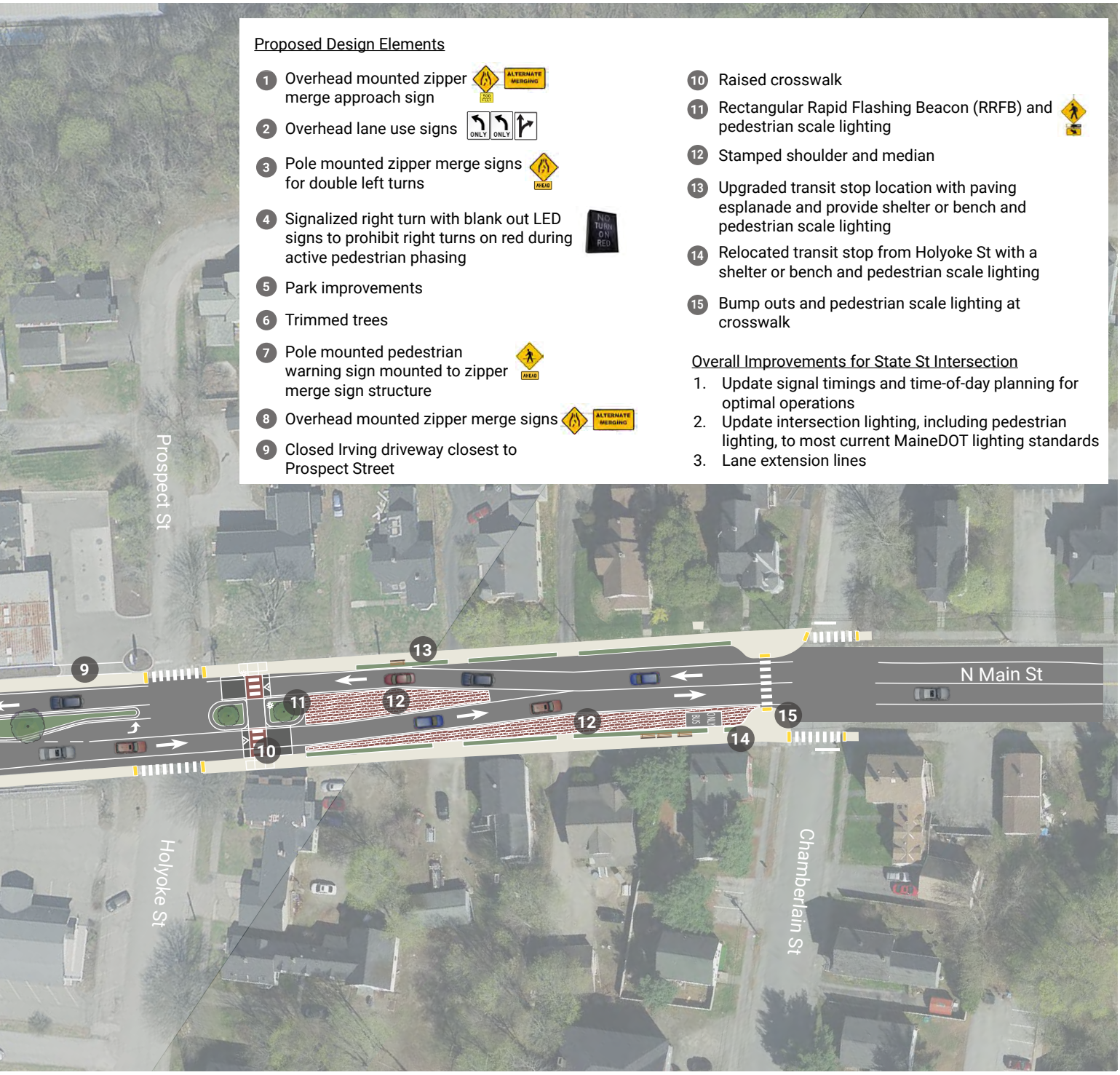
Focus Area 1: North Main Street from State Street to Chamberlain Street

Focus Area 1 covers the stretch of North Main Street from the busy State Street intersection to Chamberlain Street. The intersection of State Street and North Main Street is a High Crash Location and it is one of two local roads that cross the Penobscot River, connecting Brewer and Bangor. The intersection at North Main Street and Holyoke Street has a crosswalk that connects a residential neighborhood to a popular convenience store. This crosswalk is at the

top of a hill and traverses three lanes of traffic. There have been numerous safety concerns cited at this location. The proposed alternative for this area focuses on improving safety for all modes of travel, particularly at the State Street intersection and the Holyoke Street crosswalk by slowing and channelizing traffic, while reducing pedestrian exposure.

Cost Estimate

The estimated planning level cost for these improvements is $1,030,000. This cost estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in **Appendix D**.



Focus Area 2: Center Street Corridor and North Main Street Intersection

Center Street is an important connection in the city, linking the Historic Downtown and Riverwalk on one side of North Main Street to residential neighborhoods and the city's recreational facilities on the other side. Improving Center Street for all modes of travel was a priority for the Study Team and this sentiment was echoed through the public input received. There is no marked crossing at North Main Street despite many reports of people crossing at this location anyway. Additionally, the northern section of Center Street through the downtown is one-way coming towards North Main Street, but cars are reported to frequently turn right from North Main Street onto the one-way portion of Center Street. The southern portion of Center Street also has significant drainage problems and frequently floods. The proposed alternative for this location focuses on rebuilding Center Street, providing a safe crossing at

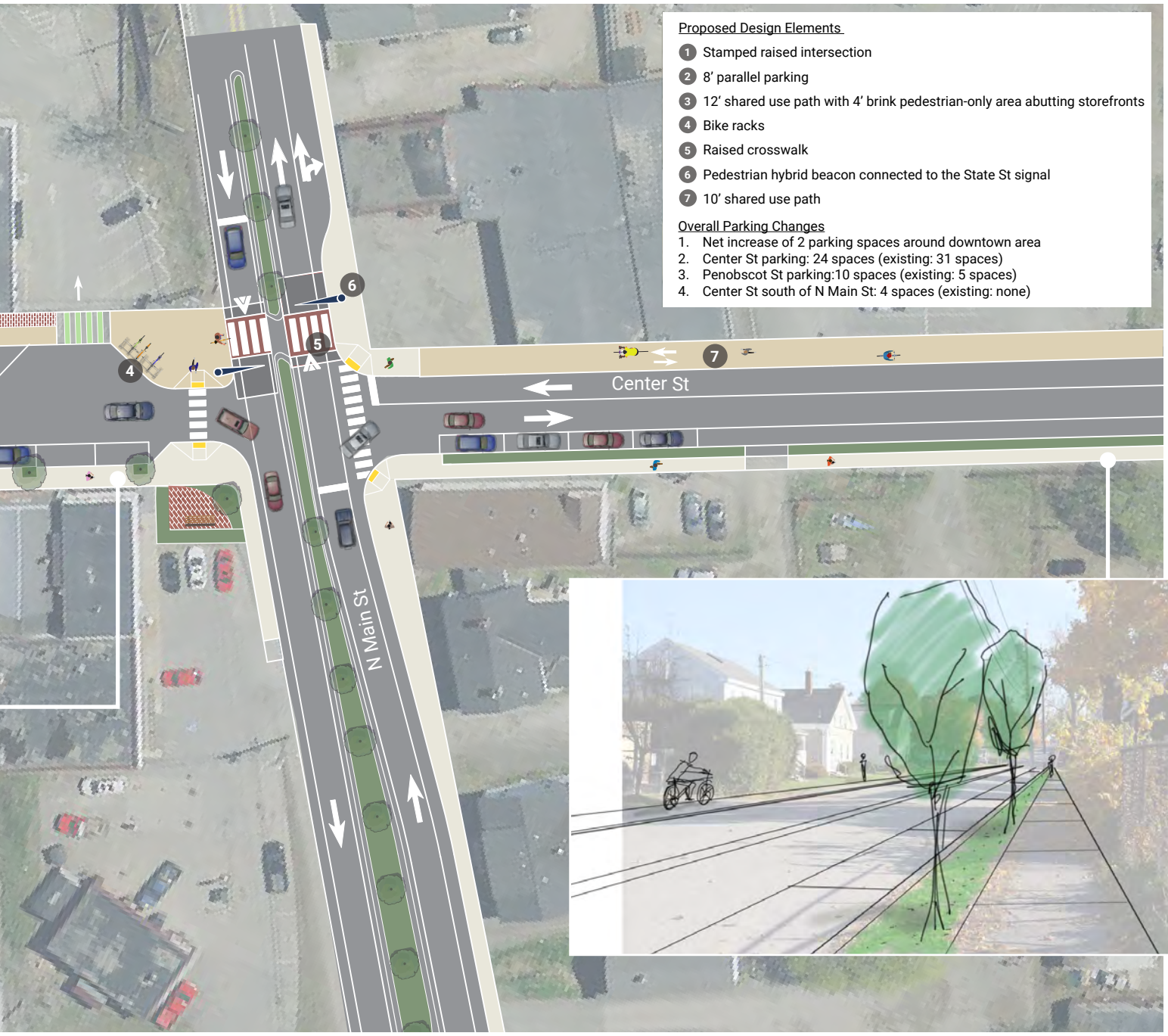
North Main Street, and connecting the Riverwalk to the recreational facilities at the end of Center Street with improved walking and biking facilities.

Cost Estimate

The estimated planning level costs for the recommendations in Focus Area 2, including the full length of Center Street are as follows:

- Center Street from Penobscot Street to North Main Street (including intersection improvements): $1,330,000
- Center Street from North Main Street to its southern end: $3,050,000

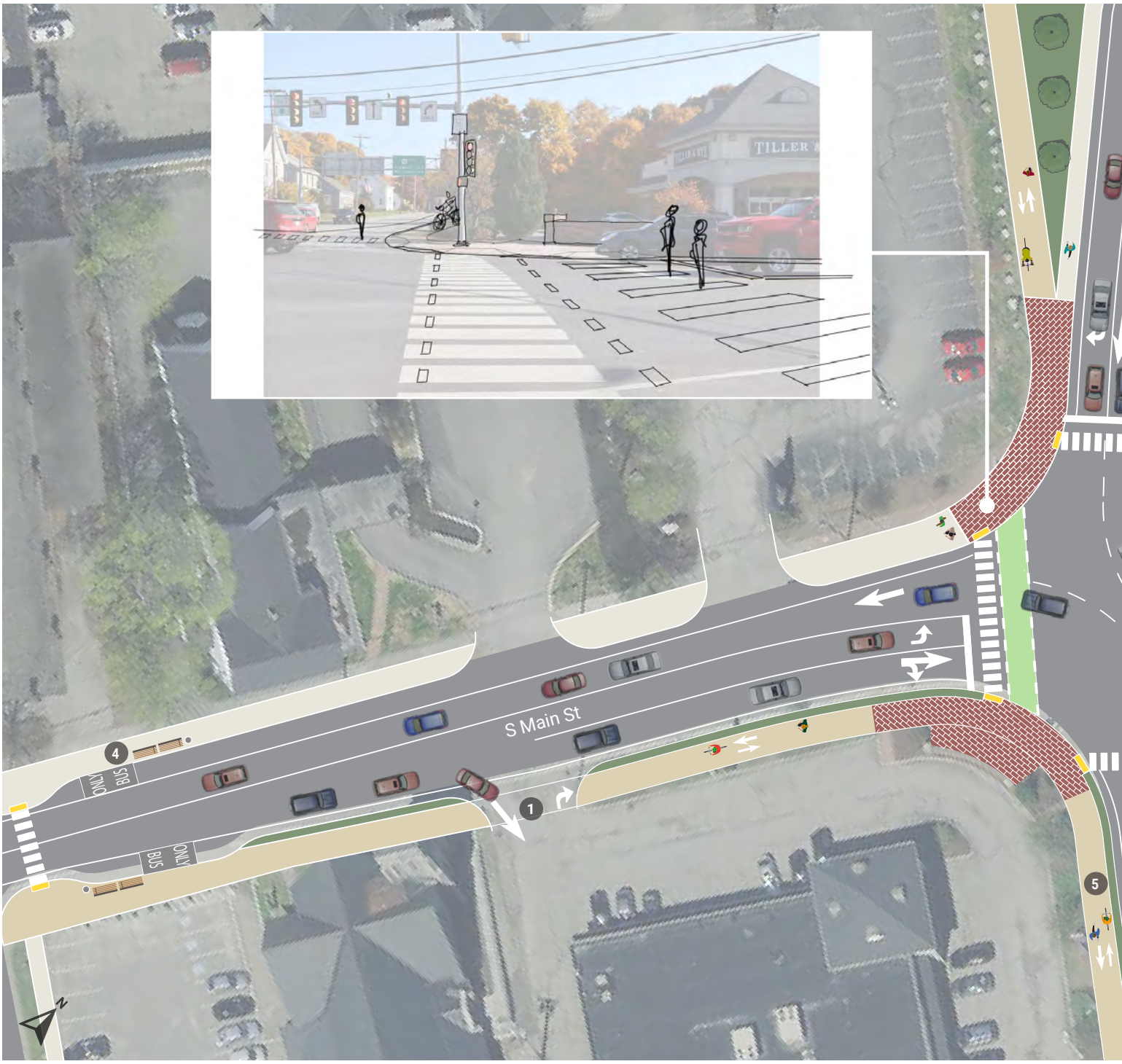
This estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in **Appendix D**.



Focus Area 3: Wilson Street Corridor and North Main Street / South Main Street Intersection

Wilson Street and North Main Street / South Main Street Intersection

The signalized intersection at Wilson Street and North Main Street / South Main Street is a High Crash Location. This intersection supports a lot of turning and through traffic in all directions. The geometry of the intersection makes it particularly challenging because none of legs of the intersection meet at right angles. Although there is ample sidewalk width for pedestrians, lighting is lacking, crosswalks are long and traffic feels like it is moving quickly.



There is also a connection to the Riverwalk parallel to Wilson Street in the northwestern corner of the intersection, but crossing the intersection from any direction on a bicycle does not feel comfortable for an average rider. The proposed intersection recommendations focus on improving the intersection's alignment, reducing crosswalk lengths, and making the area more accessible for bicycles.

Cost Estimate

The estimated planning level cost for these improvements is $2,060,000. This cost estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in **Appendix D**.

Wilson Street Corridor

The Wilson Street Corridor between North Main Street/South Main Street and State Street is a busy corridor and also an important connection to the Brewer Recreational Facilities and a potential future rail trail. Currently, the sidewalk in this area is not compliant with accessibility requirements (ADA and PROWAG) and it is obstructed by utility poles. To address these considerations, the Stantec Team focused on narrowing the roadway and improving conditions for pedestrians and bicyclists by recommending a 10’ shared use path from the North Main Street / South Main Street intersection to the railroad corridor where there are potential future plans to convert the abandoned rail corridor to a trail. This would allow for a

continuous off-road bicycle and pedestrian connection to the Riverwalk. South of the Railroad slopes are steeper and there would be impacts to existing retaining walls and foundations that make continuing the shared use path infeasible, so the proposed alternative recommends reconstructing the sidewalk through this portion of the corridor and relocating the aerial utilities to the esplanade.

Cost Estimate

The estimated planning level cost for the Wilson Street Corridor from the North Main Street / South Main Street Intersection to State Street is $3,340,000. This estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in Appendix D.

2. Introduction

This report summarizes the results of the Village Partnership Initiative (VPI) Study performed for the City of Brewer. Stantec was retained by the city in January 2024 to assist with their Maine Department of Transportation (MaineDOT) funded study of transportation and land use. This program began in 2022 and it is focused on transformative investments in Maine village and downtown centers to reinvest and revitalize the state's iconic village centers.

This study occurred over approximately a year and included an extensive public engagement component, an analysis of existing and future conditions, and proposed recommendations for each of three Focus Areas identified through the course of the study.

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Study Team

The Study Team lead the Village Partnership Initiative and included the following members:

- Jeremy Caron, P.E. - *City of Brewer, Public Works*
- David Cote - *City of Brewer, Public Works*
- Michael Tupper - *City of Brewer, Public Works*
- Renee Doble - *City of Brewer, Economic Development*
- D'arcy Main-Boyington - *City of Brewer, Economic Development*
- Linda Johns - *City of Brewer, Planning*
- Claire Winter - *Maine Department of Transportation (MaineDOT)*
- Jack Bosies - *Bangor Area Comprehensive Transportation System (BACTS)*
- Jacob Stein - *Bangor Area Comprehensive Transportation System (BACTS)*

Kickoff Meeting

The Kickoff Meeting was held on February 5, 2024 with the Stantec Team. At this meeting, the Study Team reviewed the project scope and timeline and identified the following issues within the Study Area:

- The Wilson Street Corridor is in need of pedestrian and stormwater improvements
- Center Street has significant stormwater drainage issues and needs bicycle and pedestrian improvements to connect the recreational facilities to the Riverwalk.
- The crosswalk on North Main Street at Holyoke Street is unsafe.
- The intersection of Wilson Street and North Main Street / South Main Street is a High Crash Location and needs safety improvements for all modes of travel.

Although State Street is within the Study Area, the Study Team did not want to focus on this corridor as a part of this study.

Study Team Meetings

Additional Study Team Meetings were held on the following dates:

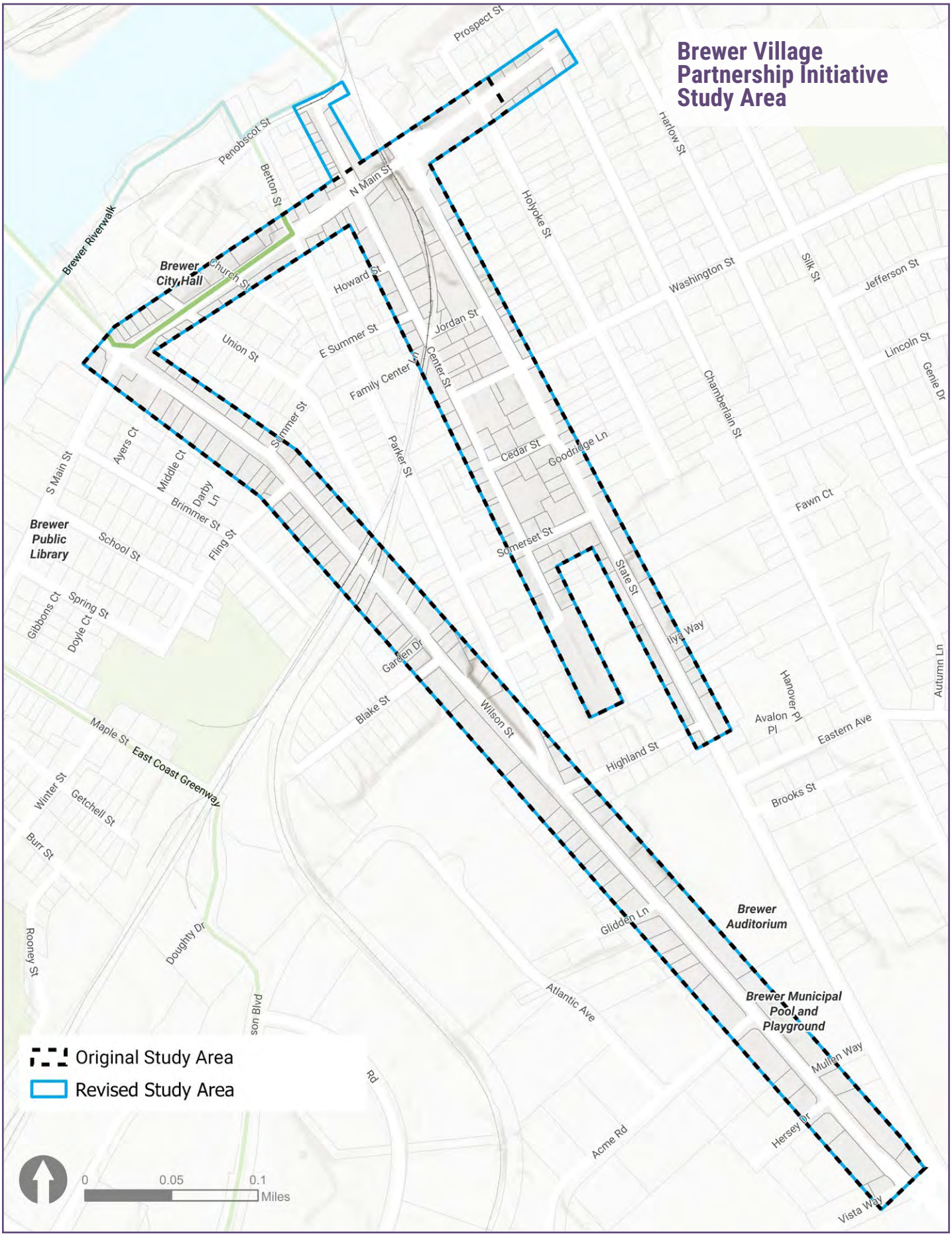
- Meeting #1 - March 25, 2024 (virtual)
- Road Safety Audit and Meeting #2 - May 23, 2024 (in-person)
- Meeting #3 - August 1, 2024 (virtual)
- Meeting #4 - October 22, 2024 (virtual)
- Meeting #5 - November 26, 2024 (virtual)

The Road Safety Audit and Meeting #2 in May consisted of a day-long meeting where the Study Team and other municipal representatives reviewed safety data along the North Main Street Corridor, conducted a site visit of the corridor, and then returned indoors to discuss what the group observed.

Purpose and Need

The following Purpose and Need statement was endorsed by the Study Team:

> Improve **safety and accessibility** for all users (walkers, bikers, drivers, and transit riders).
>
> Expand **active transportation** connections and facilities.
>
> Support **future growth and economic development** by enhancing the look, feel, and character of the streetscape.


Brewer Village Partnership Initiative Study Area
Prospect St
Penobscot St
Betton St
N Main St
Brewer Riverwalk
Brewer City Hall
Church St
Howard St
Union St
E Summer St
Jordan St
Center St
Family Center
Summer St
Parker St
Holyoke St
Harlow St
Washington St
Silk St
Jefferson St
Lincoln St
Genie Dr
Chamberlain St
Cedar St
Goodridge Ln
Somerset St
State St
Fawn Ct
Ilya Way
Hanover Pl
Avalon Pl
Eastern Ave
Autumn Ln
Highland St
Brooks St
Wilson St
Blake St
Garden Dr
S Main St
Ayers Ct
Middle Ct
Darby Ln
Brimmer St
Fling St
Brewer Public Library
School St
Gibbons Ct
Spring St
Doyle Ct
Maple St
East Coast Greenway
Winter St
Getchell St
Burr St
Rooney St
Doughty Dr
Brewer Auditorium
Glidden Ln
Atlantic Ave
Brewer Municipal Pool and Playground
Mullen Way
Hersey Dr
Acme Rd
Vista Way
Original Study Area
Revised Study Area
0
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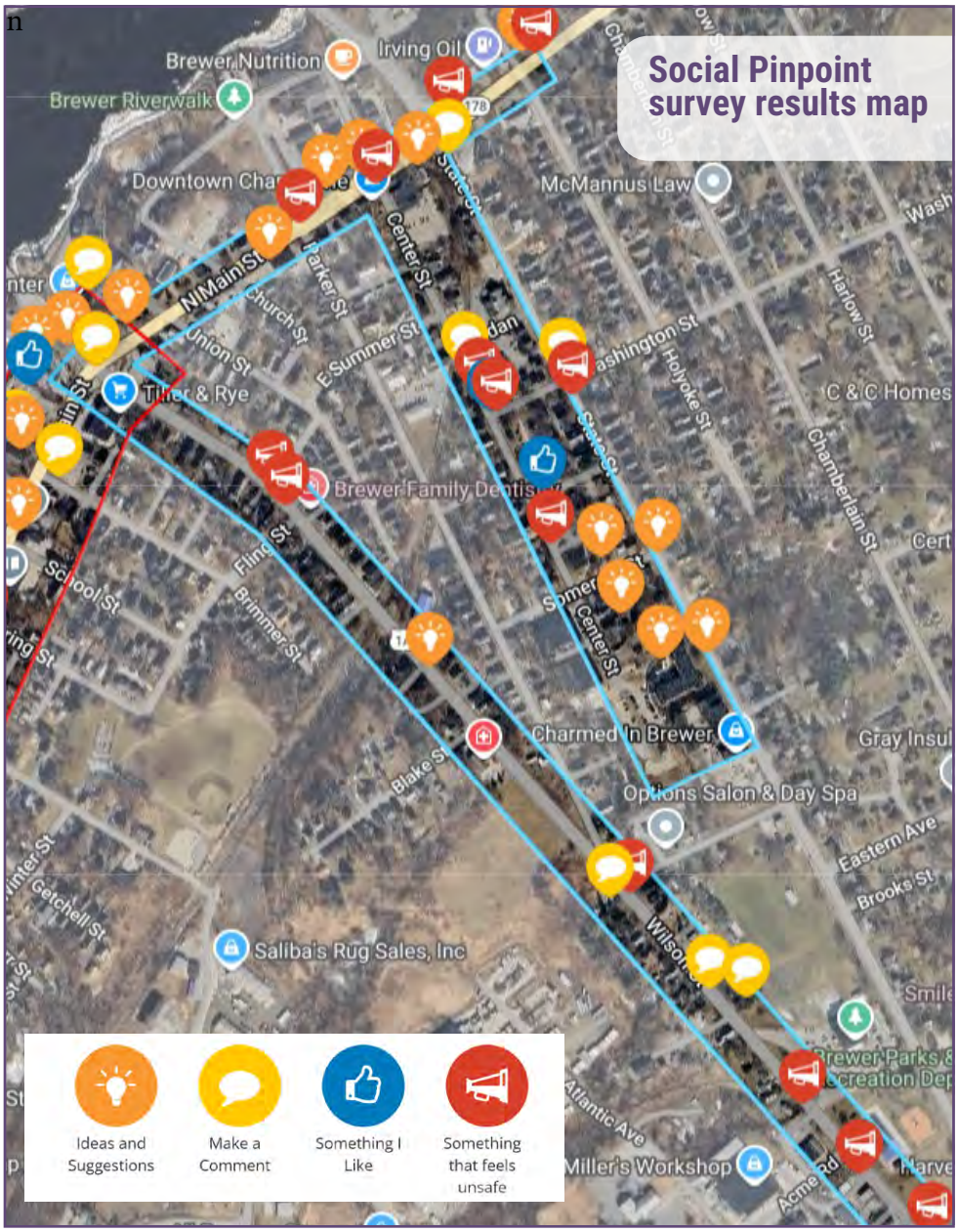
Miles

3. Public Engagement

This study included an extensive public engagement component. There were two public meetings, a survey with over 50 responses, and roundtable discussions for members of the public to share their comments and concerns with the Study Team.

Community Survey

A map-based community survey was released in May 2024 using the Social Pinpoint platform. In order to maximize engagement and reduce survey fatigue, this survey simultaneously



requested input on both this study and the Brewer South Main Street Corridor Study, which was also being led by Stantec.

Social pinpoint allows users to provide geographically-specific feedback by placing a pin on the map and entering a comment about that location. Users can also "like" a comment entered by another user, which gave the Study Team additional insights to help prioritize focus areas and improvements. The survey was open for a month and distributed to residents across the city's social media channels. Representatives from BACTS also attended the Riverwalk Festival in June 2025 to solicit feedback on both projects. This feedback was incorporated into the Social Pinpoint survey. There were over 65 unique comments and nearly 100 likes on the map within the Study Area.

BREWER VPI SOCIAL PINPOINT SURVEY - KEY FEEDBACK OVERVIEW

Center Street

- I really like the ideas presented to connect Center to the riverwalk. Main Street is a dangerous barrier for pedestrians and bikers trying to get to the riverwalk. (**+13 likes**)
- Center St is in desperate need of re-paving. I'm excited for that! (**+9 likes**)
- Please add storm drains during the replacement process. Center St between Washington St and Jordan St holds a lot of water during /after rain storms. (**+8 likes**)

North Main Street

- Slow down traffic through slip lane at State and Main intersection (**+1 like**)
- This intersection at Center Street is dangerous for pedestrians. Cars don't pay attention to pedestrians and drive fast through here. (**+1 like**)

Wilson Street

- Vehicles do not stop at existing crosswalk at Summer Street. Speed is a factor as well. (**+9 likes**)
- This entire section doesn't feel safe for pedestrians. There's no safe place to cross to the recreational facilities. Also, people parking on both sides of the road for games makes it hard to cross (**+5 likes**)
- This intersection (Wilson St. and Parker St.) is a dangerous crossing for a pedestrian, with autos headed downtown on Wilson St routinely traveling at 35-40 mph, and the pedestrians visibility partially obscured. (**+1 like**)

Wilson Street and North Main Street / South Main Street Intersection

- This entire intersection is unsafe for pedestrians. Specifically, cars turning right from N. Main onto the bridge and cars turning right from the bridge onto S. Main are used to rolling through the intersection and often roll through the crosswalk as pedestrians are trying to cross. (**+8 likes**)
- There need to be some traffic-calming ideas utilized at this intersection, whether it is street murals, islands of some sort, plantings...something. (**+1 like**)

Public Meeting #1 and Virtual Roundtables

The first public meeting was held on September 30th, 2024. Like the survey, this meeting was for both the Brewer VPI project and the Brewer South Main Street Corridor project. The meeting was held in Council Chambers, with one session at 2pm and a second session at 6pm. Approximately 30 people attended in total. At these meetings, the Stantec Team gave a brief presentation and then answered questions and solicited feedback from the public regarding desired street improvements, intersection concerns and ideas, and preferred cross-sections of key corridors.

In advance of this meeting, the Stantec Team coordinated with the city and BACTS to host 5 virtual roundtables focused on specific user groups and sharing similar content as the public meeting. Only the roundtables for local businesses and the Bangor Area Recovery Network (BARN) had attendees, with a total of 5 people participating.

Key takeaways from the Public meeting and roundtables are summarized below:

Street Improvement Priorities:

- Bicycle lanes and bus shelters were the most requested improvements.
- Additional on-street parking was not a high priority.

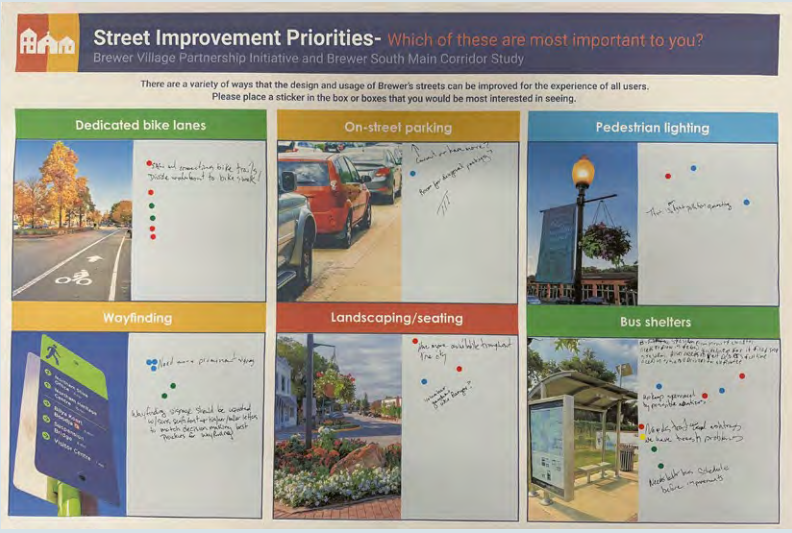
Intersections Review:

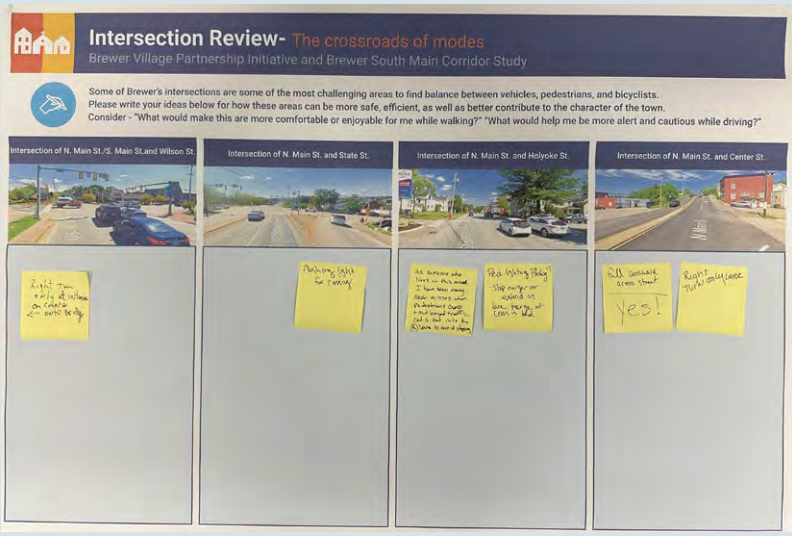
- Pedestrian crossings are challenging across the board.
- There is a strong desire for a formal pedestrian crossing on Center Street.
- Existing RRFB's (push button flashing lights at a crosswalk) are very popular.

Street Cross Sections:

- On-street bike facilities are desirable, even near the Riverwalk.
- Separated bicycle facilities were preferred.
- Alternatives with street trees were generally more popular.

PUBLIC MEETING #1 - INTERACTIVE POSTERS





Public Meeting #2

The second public meeting was held from 4pm to 6pm on November 14th in City Council Chambers. At this meeting, the Stantec Team reviewed the study process to date and shared the draft alternatives with the public for feedback. The presentation and posters of the draft recommendations were also posted on the city's website for additional feedback. The comments heard at this meeting will be noted later in this report under the recommendations for each Focus Area.

4. Existing Conditions

In order to fully understand the Study Area, Stantec completed an Available Data Summary report, including an in depth review of available plans, reports, and data. The full report can be found in **Appendix A**. Stantec also completed an Assessment of Current Conditions, which includes an analysis of multimodal traffic, road safety and land uses, which is available in **Appendix B**. This section of the report includes an overview of both documents.

Review of Existing Plans

Stantec reviewed recently completed local and regional plans and reports relevant to this study. This review focused on findings and recommendations within the Study Area to use as background and a basis for the recommendations in this study. Below is a summary of findings from existing plans and reports at key focus areas within the Study Area.

PRIOR PLANS AND REPORTS REVIEWED

- City of Brewer Comprehensive Plan | March 2015
- Comprehensive Plan Appendix A: Waterfront Master Plan (Penobscot Landing) | March 2015
- Brewer Penobscot Landing Report | 2004
- Heads Up! Pedestrian Safety Action Plan | January 2021
- Brewer Revitalization Plan – Highland Street
- Action Plan for Walkability and Place-making in Brewer, Maine | October 2017
- Brewer Retail Consumer Survey | 2023
- BACTS Long Range Pedestrian and Bicycle Transportation Plan | July 2019
- BACTS Vision 2043 | November 2023
- BACTS Draft Transportation Improvement Program
- Parker Street Site Plan, Brewer Engineering Department | February 2024

Intersection of Wilson Street and North Main Street / South Main Street

The following plans and studies addressed existing conditions and proposed recommendations for the intersection of Wilson Street and North Main Street / South Main Street.

Brewer Comprehensive Plan

FINDINGS

- In 2007, BACTS commissioned a Truck Routes study that identified a list of spot improvements needed at specific locations which were needed to accommodate trucks on the region's roads. Needed improvements in Brewer included the Wilson Street and North Main Street intersection.

RECOMMENDATIONS

- Traffic efficiency. Provide for traffic efficiency improvements whenever possible rather than new construction or rerouting projects on South and North Main, Wilson, and State Streets, to reduce noise and congestion, improve visual quality, and strengthen economic potential.

BACTS Long Range Pedestrian and Bicycle Transportation Plan

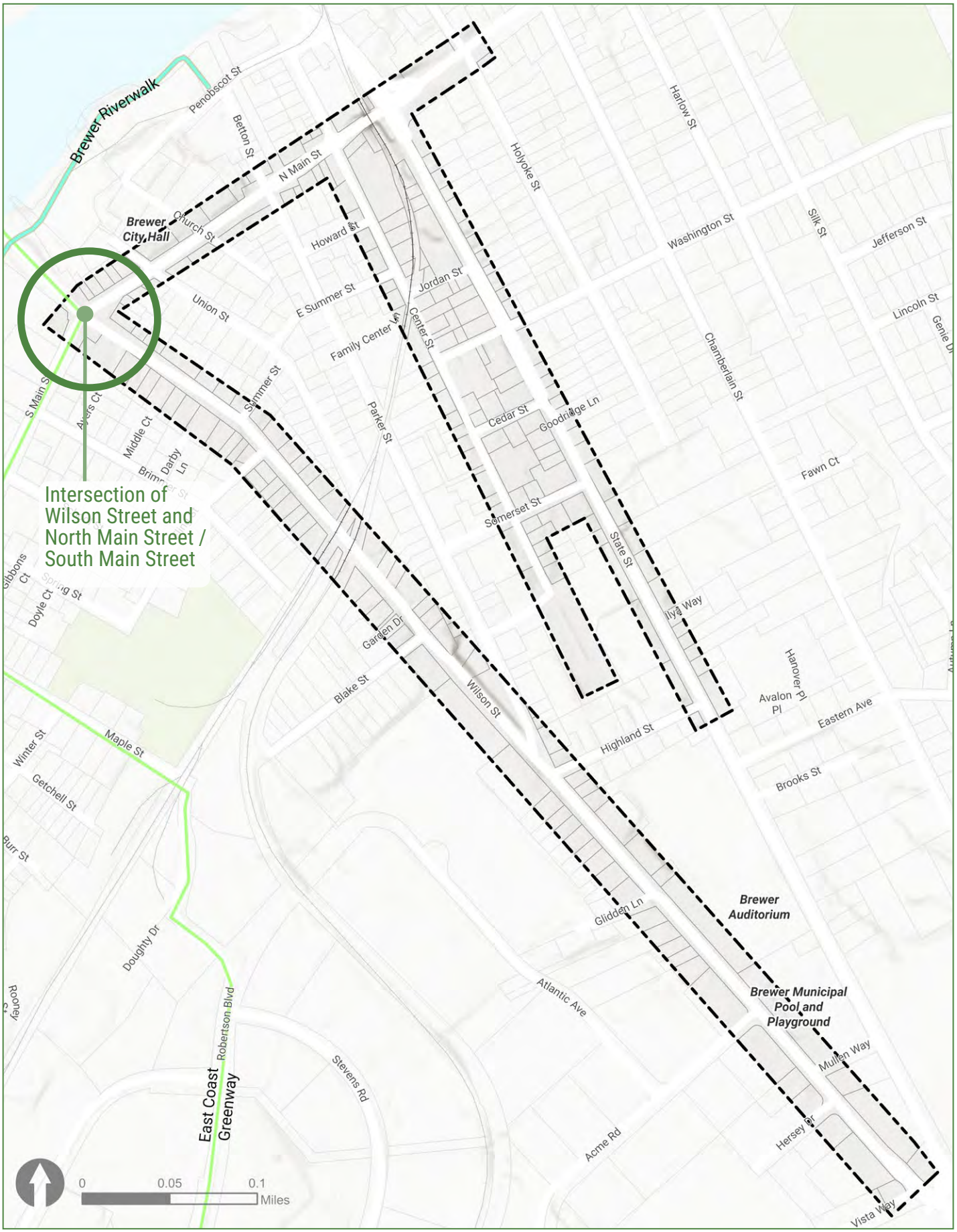
RECOMMENDATIONS

- Intersection Improvements: This intersection was the #1 priority in Brewer
  - Notes about the problem: Speeding traffic, crosswalks are too long, roads/crosswalks are poorly lit, signals not present or working well, motorists' turn signals conflict with ped crossing, too much traffic

Heads Up! Pedestrian Safety Action Plan

RECOMMENDATIONS

- Calm turning traffic
  - Complete a field review and a safety assessment to determine the appropriate turning radius for each leg of the intersection
  - Evaluate the appropriateness of using flexible delineators to tighten the radius of intersection corners to slow turning vehicles
  - Consider changing radii (through curb extensions or other strategies) of the southwest and northwest corners to slow turning traffic
- Modify pedestrian signals to improve crossing safety
  - Consider a leading pedestrian interval (LPI) phase at to reduce the number of potential conflicts between turning vehicles and pedestrians
- Increase visibility of crosswalks
  - Evaluate the appropriateness of flexible delineators to create seasonal curb extensions to enhance pedestrian visibility and shorten crossing distances
  - Evaluate current overhead lighting and consider upgrading to LEDs and expanding the number of luminaires
- Increase ADA functionality of crosswalks
  - Consider upgrading to Accessible Pedestrian Signals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Chamberlain St
Cedar St
Goodridge Ln
Parker St
Summer St
Middle Ct
Ayers Ct
S Main St
Somerset St
State St
Ilva Way
Fawn Ct
Hanover Pl
Avalon Pl
Eastern Ave
Brooks St
Highland St
Wilson St
Blake St
Garden Dr
Maple St
Winter St
Getchell St
Burr St
Doughty Dr
Glidden Ln
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Atlantic Ave
Mullen Way
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Intersection of State Street and North Main Street

The following plans and studies addressed existing conditions and proposed recommendations for the intersection of State Street and North Main Street.

Brewer Comprehensive Plan

FINDINGS

» In 2007, BACTS commissioned a Truck Routes study that identified a list of spot improvements needed at specific locations which were needed to accommodate trucks on the region's roads. Needed improvements in Brewer included the State Street and North Main Street intersection.

RECOMMENDATIONS

» Traffic efficiency. Provide for traffic efficiency improvements whenever possible rather than new construction or rerouting projects on South and North Main, Wilson, and State Streets, to reduce noise and congestion, improve visual quality, and strengthen economic potential.

BACTS Draft Transportation Improvement Program

BACTS PRIORITIZED PROJECT LIST 2024 – 2027

» State Street and North Main Street Operational and Safety Improvements – Signal Project $338,900

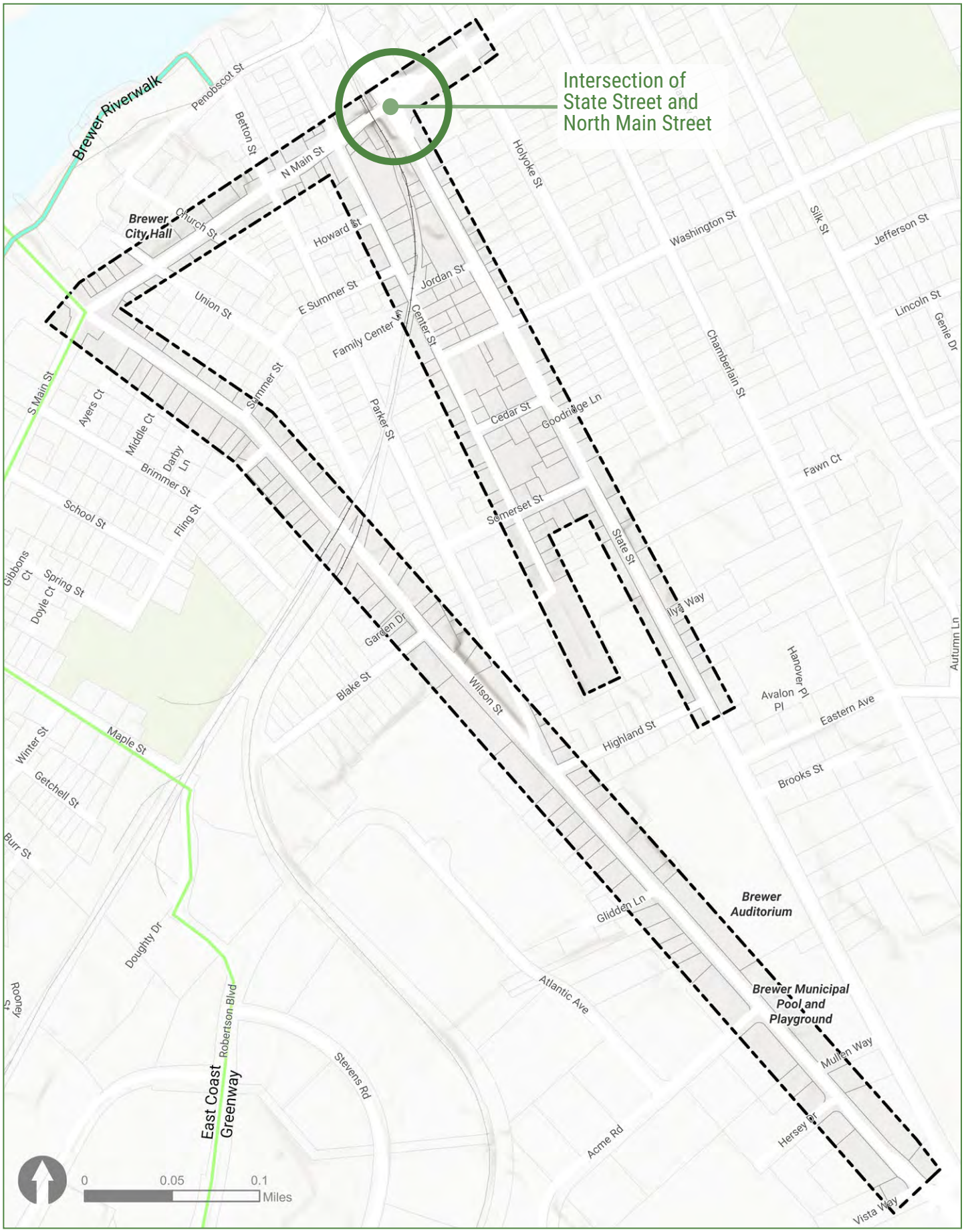
BACTS PRIORITIZED PROJECT LIST 2026 – 2027 – NOT YET FUNDED

» State & N. Main - Operational and Safety Improvements - Signal Project - $338,913

BACTS Long Range Pedestrian and Bicycle Transportation Plan

RECOMMENDATIONS

» North Main Street Shoulders (Wilson Street to Chapman Street). There is an extreme grade on the northbound approach at the State Street/North Main Street intersection that is problematic for bicyclists. Turn lanes also present challenges.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Chamberlain St
S Main St
Ayers Ct
Middle Ct
Darby Ln
Brimmer St
Summer St
Parker St
Cedar St
Goodridge Ln
Fawn Ct
School St
Fling St
Somerset St
State St
Gibbons Ct
Spring St
Doyle Ct
Ilya Way
Garden Dr
Hanover Pl
Autumn Ln
Blake St
Wilson St
Avalon Pl
Eastern Ave
Highland St
Maple St
Winter St
Brooks St
Getchell St
Burr St
Brewer Auditorium
Glidden Ln
Dougherty Dr
Atlantic Ave
Brewer Municipal Pool and Playground
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Robertson Blvd
East Coast Greenway
Stevens Rd
Hersey St
Acme Rd
Vista Way
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Wilson Street

The following plans and studies addressed existing conditions and proposed recommendations for the Wilson Street corridor.

BACTS Long Range Pedestrian and Bicycle Transportation Plan

FINDINGS

- Wilson Street features wide shoulders from North Main Street to State Street
- Wilson Street sees frequent bicyclist traffic from Bangor to Vista Way before that traffic diverts and heads down Dirigo Drive.
- There were several transportation projects funded through BACTS or directly by the Maine Department of Transportation that were scheduled for FY 2014/15. These included - Pavement Preservation: Wilson Street from Parkway South to Main Street
- Lack of coordinated signal systems on major corridors, specifically Wilson Street, is also a problem

RECOMMENDATIONS

- Wilson Street Study
  - Conduct a study to investigate an appropriate location for a pedestrian crossing between State Street and Green Point Road. (Pedestrians currently dart into traffic because signalized crossings are too far apart. Adding a new crossing could cause traffic back-ups and delays at traffic signals.)

Brewer Comprehensive Plan

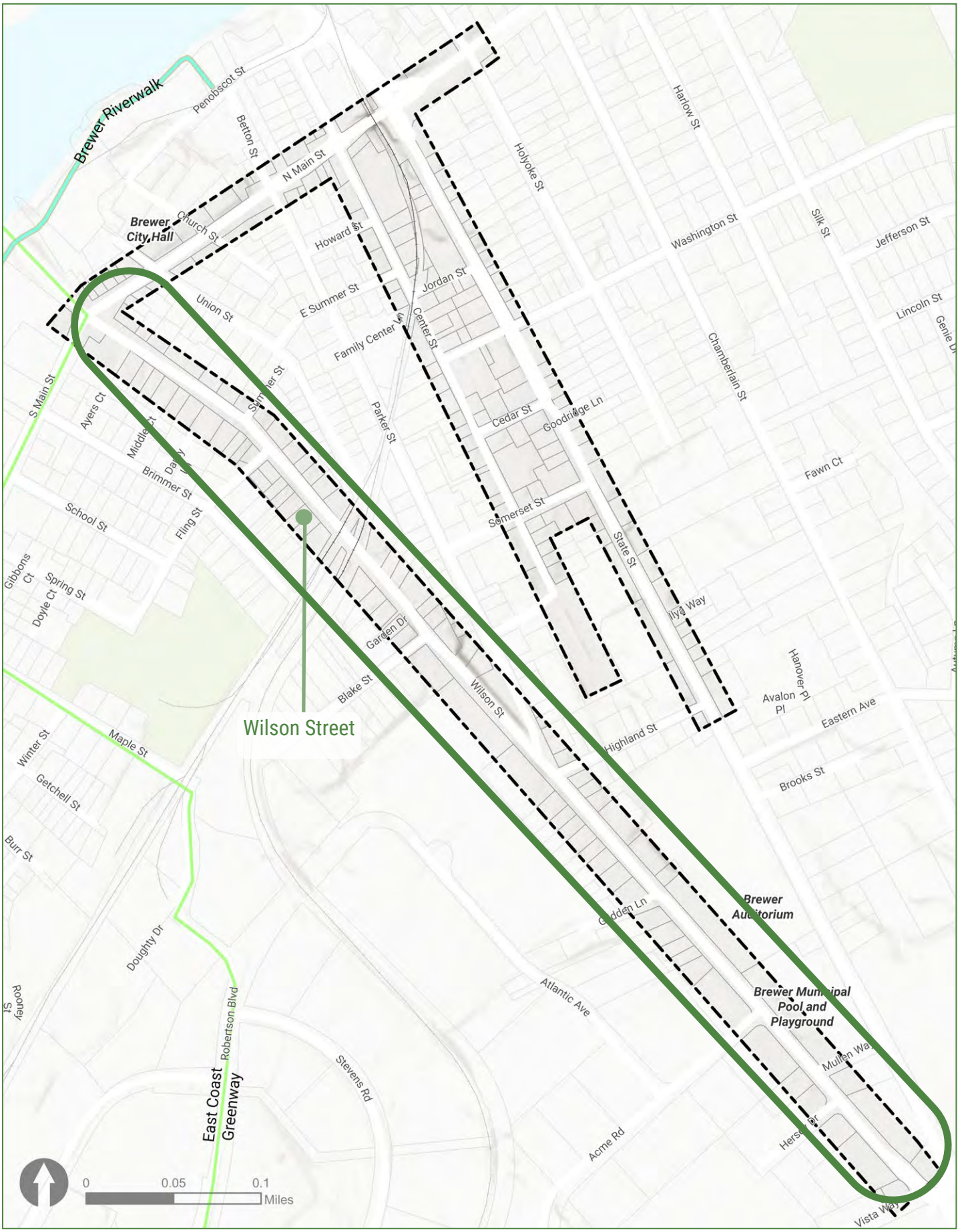
RECOMMENDATIONS

- Traffic efficiency
  - Provide for traffic efficiency improvements whenever possible rather than new construction or rerouting projects on South and North Main, Wilson, and State Streets, to reduce noise and congestion, improve visual quality, and strengthen economic potential

Brewer Penobscot Landing Report

RECOMMENDATIONS

- Wilson Street from Brewer Auditorium to Acme Road is a part of the proposed on-street connection for the Multi-Purpose Trail.
  - Review traffic signal operations and crosswalks along the segment to affirm adequate pedestrian provisions.


Brewer Riverwalk
Penobscot St
Betton St
N Main St
Brewer City Hall
Church St
Howard St
Union St
E Summer St
Family Center Ln
Jordan St
Center St
Holyoke St
Harlow St
Washington St
Silk St
Jefferson St
Lincoln St
Chamberlain St
Cedar St
Goodridge Ln
Somerset St
State St
Ilya Way
Fawn Ct
Parker St
S Main St
Ayers Ct
Middle St
Brimmer St
School St
Fling St
Gibbons Ct
Doyle Ct
Spring St
Garden Dr
Blake St
Wilson St
Wilson Street
Hanover Pl
Avalon Pl
Eastern Ave
Highland St
Brooks St
Maple St
Winter St
Getchell St
Burr St
Dougnty Dr
Rooney St
Robertson Blvd
East Coast Greenway
Stevens Rd
Atlantic Ave
Acme Rd
Brewer Auditorium
Brewer Municipal Pool and Playground
Mullen Way
Vista Way
0
0.05
0.1
Miles

North Main Street

The following plans and studies addressed existing conditions and proposed recommendations for North Main Street.

Brewer Comprehensive Plan

RECOMMENDATIONS

» Provide for traffic efficiency improvements whenever possible--rather than new construction or rerouting projects on South and North Main, Wilson, and State Streets--to reduce noise and congestion, improve visual quality, and strengthen economic potential

BACTS Long Range Pedestrian and Bicycle Transportation Plan

FINDINGS

» North Main Street Shoulders (Wilson Street to Chapman Street). There is an extreme grade on the northbound approach at the State Street/North Main Street intersection that is problematic for bicyclists. Turn lanes also present challenges.

RECOMMENDATIONS

» Add bump outs and RRFB on North Main Street at City Hall in 2019.

Heads Up! Pedestrian Safety Action Plan

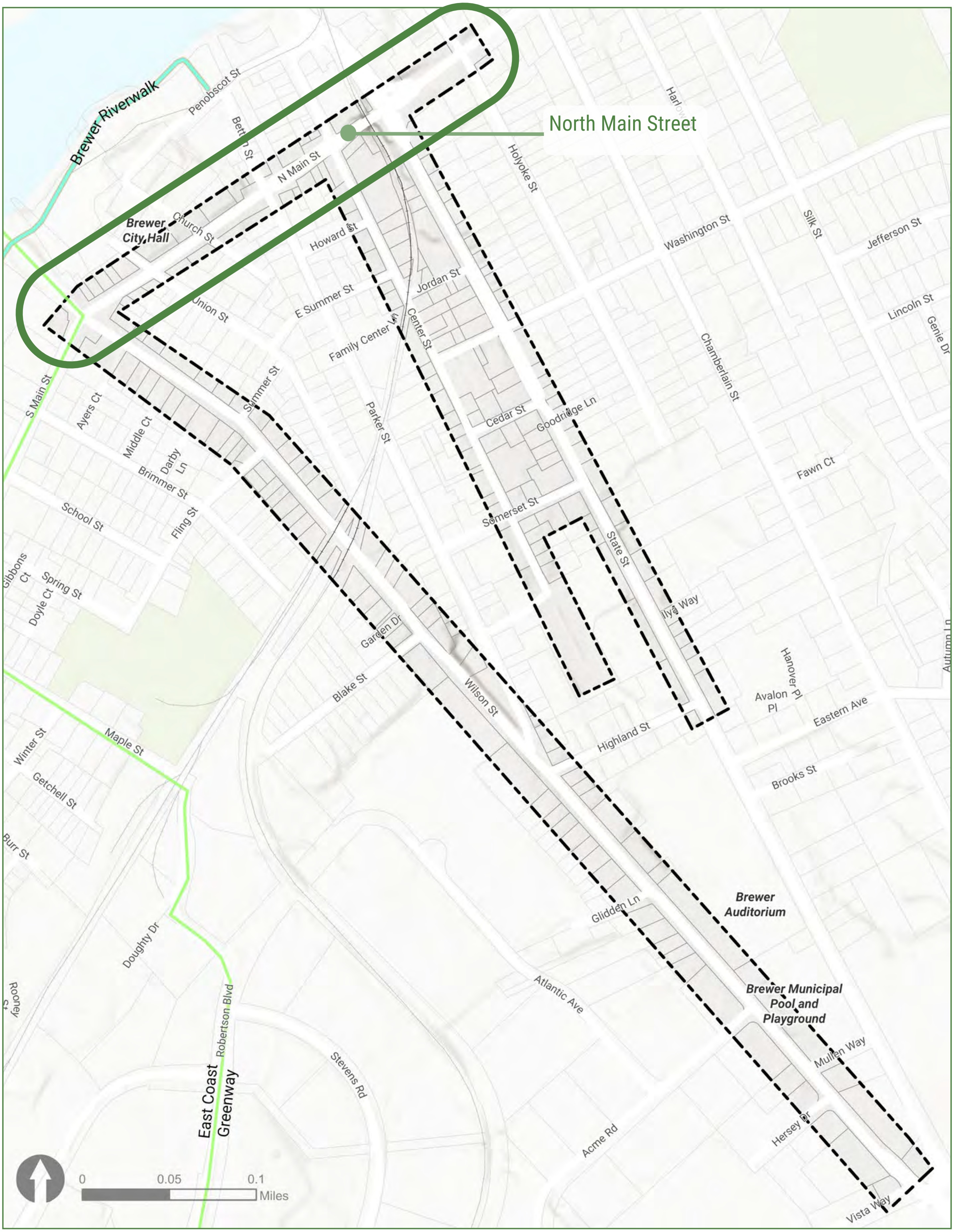
RECOMMENDATIONS – NORTH MAIN STREET BETWEEN UNION AND CHURCH STREETS

» Clearly define crosswalk locations to raise driver expectations about the possibility of pedestrians.
  - » Evaluate the appropriateness of utilizing flexible delineators on the white edge line at crosswalks
  - » Consider incorporating a gateway treatment as drivers enter this area
  - » Install W11-2 double-sided pedestrian signage (high intensity yellow or yellow / lime color is recommended) on both sides of unsignalized pedestrian crossings to alert drivers of the presence of crosswalks
  - » Implement and enforce 20-foot parking setback from all crosswalks

» Increase visibility of crosswalks
  - » Complete a field review and a safety assessment to determine appropriate ped safety alternatives
  - » Evaluate current overhead lighting and consider upgrading to LEDs and expanding the number of luminaires
  - » Consider adding RRFBs to one of the crosswalks
  - » Review MaineDOT's Pedestrian Safety Toolbox once released and consider implementing pedestrian crossing improvements as recommended within the toolbox

» Shorten crossing distance
  - » Re-align crosswalk at Church Street to cross Main Street at closer to 90º

» Improve safe pedestrian access
  - » Consider adding ADA ramp from City Hall property to the sidewalk


North Main Street
Brewer Riverwalk
Penobscot St
Betton St
N Main St
Brewer City Hall
Church St
Howard St
Union St
E Summer St
Family Center Ln
Center St
Jordan St
Holyoke St
Washington St
Silk St
Jefferson St
Lincoln St
Genie Dr
Chamberlain St
S Main St
Ayers Ct
Middle Ct
Darby Ln
Brimmer St
Summer St
Parker St
Cedar St
Goodridge Ln
Fawn Ct
School St
Fling St
Somerset St
State St
Gibbons Ct
Spring St
Doyle Ct
Ilya Way
Garden Dr
Hanover Pl
Autumn Ln
Avalon Pl
Eastern Ave
Blake St
Wilson St
Highland St
Maple St
Winter St
Brooks St
Getchell St
Burr St
Brewer Auditorium
Glidden Ln
Doughty Dr
Atlantic Ave
Brewer Municipal Pool and Playground
Rooney St
Robertson Blvd
Mullen Way
Stevens Rd
East Coast Greenway
Acme Rd
Hersey Dr
0
0.05
0.1
Miles
Vista Way

Multimodal Analysis

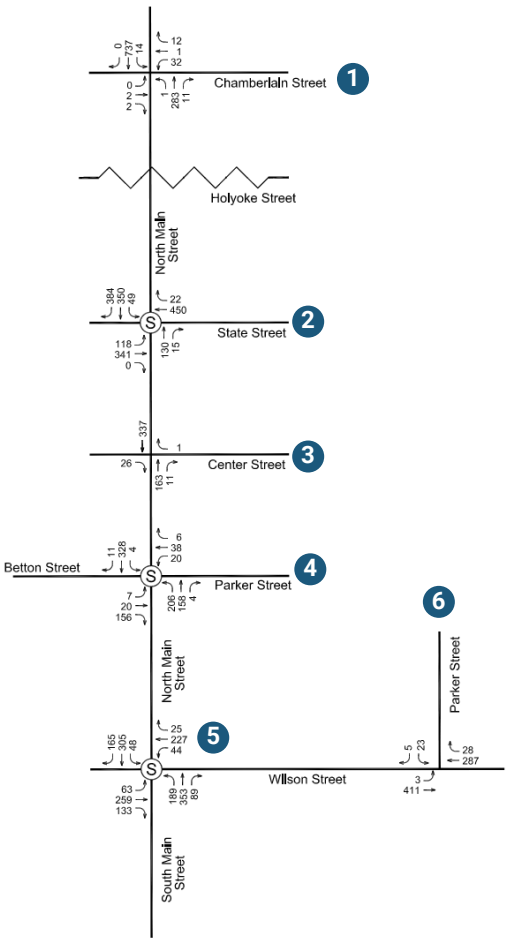
A detailed Multimodal Analysis was completed in the Assessment of Current Conditions. This document is available in its entirety in **Appendix B**.

Traffic Volumes

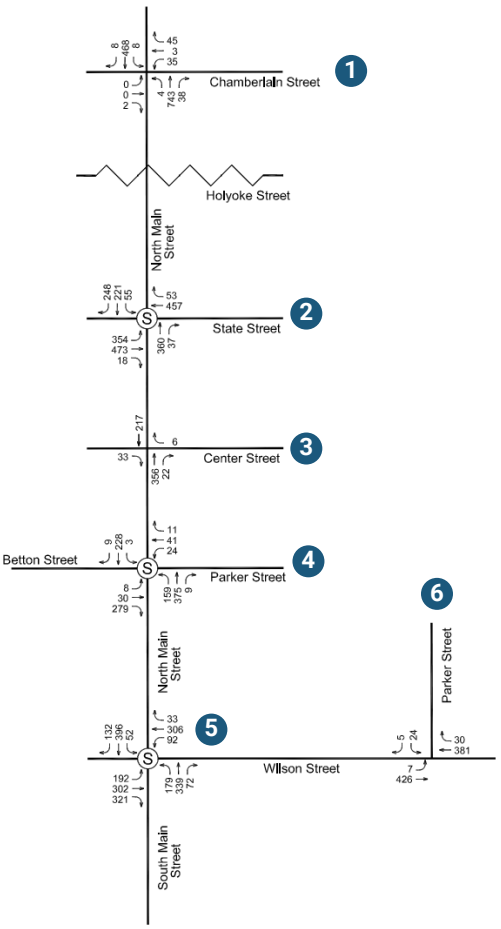
Factored Average Annual Daily Traffic Volumes for the Study Area were accessed through the MaineDOT Public Map Viewer. Traffic volumes are highest along the State-controlled corridors (North Main Street, State Street, and Wilson Street) and are significantly lower on the surrounding residential streets.

To further evaluate existing and future traffic operations, BACTS led the turning movement count (TMC) data collection. The traffic data was collected using video-based traffic counting equipment and conducted over twelve-hour, mid-week periods to capture the operations of a general workday. The following intersections were collected by BACTS in the months of April and May of 2024 and between 7am and 7pm:

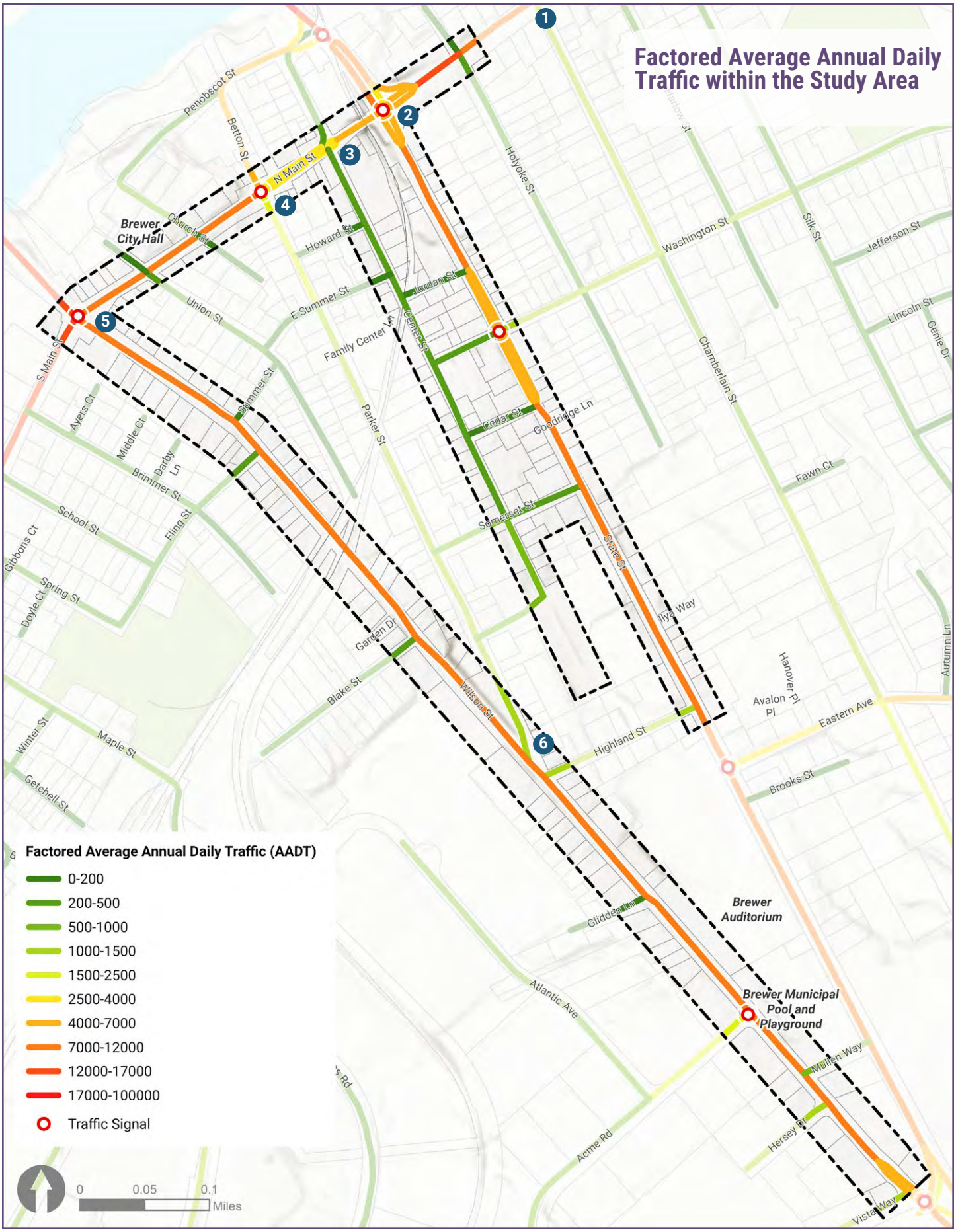
1. North Main Street at Chamberlain Street – Collected May 22, 2024
2. North Main Street at State Street – Collected April 25, 2024
3. North Main Street at Center Street – Collected May 1, 2024
4. North Main Street at Betton Street and Parker Street – Collected May 29, 2024
5. North Main Street and South Main Street at Wilson Street – Collected April 23, 2024
6. Wilson Street at Parker Street – Collected May 23, 2024



Morning Peak Hour Vehicle Volumes at Study Area Intersections



Evening Peak Hour Vehicle Volumes at Study Area Intersections


Factored Average Annual Daily Traffic within the Study Area
1
2
3
4
5
6
Penobscot St
Betton St
N Main St
Church St
Brewer City Hall
Howard St
Holyoke St
Washington St
Silk St
Jefferson St
Lincoln St
Genie Dr
Chamberlain St
Union St
E Summer St
Jordan St
Center St
Family Center Ln
S Main St
Summer St
Parker St
Cedar St
Goodridge Ln
Somerset St
State St
Ilya Way
Fawn Ct
Autumn Ln
Ayers Ct
Middle Ct
Darby Ln
Brimmer St
School St
Fling St
Gibbons Ct
Spring St
Doyle Ct
Garden Dr
Blake St
Wilson St
Hanover Pl
Avalon Pl
Eastern Ave
Highland St
Brooks St
Winter St
Maple St
Getchell St
Glidden Ln
Brewer Auditorium
Atlantic Ave
Brewer Municipal Pool and Playground
Mullen Way
Hersey Pl
Acme Rd
Vista Way
Factored Average Annual Daily Traffic (AADT)
0-200
200-500
500-1000
1000-1500
1500-2500
2500-4000
4000-7000
7000-12000
12000-17000
17000-100000
Traffic Signal
0
0.05
0.1
Miles

Vehicular Operations

Level of Service (LOS), an expression of traffic flow, is a commonly used and accepted measure of effectiveness of peak-hour traffic operating conditions. It considers such factors as automobile and truck volumes, roadway width, speed, grades, parking restrictions, pedestrian activity, and traffic control devices.

LOS is designated in a range from Level "A", which is where a roadway's operating conditions are at their least delayed and congested, to Level "F", which indicates excessive delays and typically jamming level of congestion. Levels "A" through "D" are typically associated with acceptable levels of peak-hour traffic operation within urban areas.

The Synchro traffic analysis software package (Version 11) was used to evaluate operating conditions at signalized intersections for existing traffic analyses. The analysis methodology is based on the Federal Highway Capacity Manual (HCM) and is widely accepted for use by MaineDOT.

All studied intersections within the Study Area operate acceptably at LOS C or better during the morning peak hour period. Some left-turn lanes throughout the Study Area's intersections operate at LOS D due to their projected average vehicular delays but see low volume to capacity ratios and relatively short queues.

During the afternoon peak hour period, all studied intersections operate acceptably at LOS C or better, except for the signalized intersection of North Main Street / South Main Street at Wilson Street which operates at LOS D, with an average vehicular delay of 37.9 seconds. For operations of lanes of this intersection, the worst performing lane is the Wilson Street eastbound left-turn lane operates at LOS F, with an average vehicular delay of 93.6 seconds, volume to capacity ratio of 0.98, and 95th percentile queue of 313 feet, exceeding the existing storage by approximately 100 feet. This queue impacts the operations of the other lanes approaching this intersection from the Chamberlain Bridge. The next worse performing lanes of this intersection during the afternoon peak hour period are the Wilson Street westbound left-turn lane, Wilson Street westbound through-right lane, North Main Street southbound left-turn lane, and North Main Street southbound through lane, which all operate at LOS D.

Signalized Intersection Level of Service	
LOS	Delay Range
A	<=10.0 seconds
B	>10.0 and <=20.0 seconds
C	>20.0 and <=35.0 seconds
D	>35.0 and <=55.0 seconds
E	>55.0 and <=80.0 seconds
F	>80.0 seconds

Source: Highway Capacity Manual 2010, TRB

Unsignalized Intersection Level of Service	
LOS	Delay Range
A	<=10.0 seconds
B	>10.0 and <=15.0 seconds
C	>15.0 and <=25.0 seconds
D	>25.0 and <=35.0 seconds
E	>35.0 and <=50.0 seconds
F	>50.0 seconds

Source: Highway Capacity Manual 2010, TRB

Existing Weekday Peak Hour Intersection Level of Service									
Approach	Direction / Turning Movement	AM Peak				PM Peak			
		Delay	LOS	v/c	Queue 95th%	Delay	LOS	v/c	Queue 95th%
1. North Main Street @ Chamberlain Street (Stop-controlled)									
N. Main St	NB L	9.6	A	0.00	0	8.3	A	0.00	0
N. Main St	SB L	8.0	A	0.01	0	9.6	A	0.01	0
Chamberlain St	WB L/T/R	31.3	D	0.26	25	34.8	D	0.43	50
Chamberlain St	EB L/T/R	21.3	C	0.04	3	11.2	B	0.01	0
OVERALL		**1.5**	**A**			**2.3**	**A**		
2. North Main Street @ State Street (Signalized)									
State St	EB L (2 Lanes)	44.0	D	0.36	70	43.7	D	0.67	180
State St	EB T/R	10.6	B	0.35	235	13.1	B	0.51	374
State St	WB T T/R	19.0	B	0.36	196	25.7	C	0.46	226
N. Main St	NB T T/R	35.0	C	0.23	65	39.5	D	0.66	167
N. Main St	SB L	46.1	D	0.34	70	46.1	D	0.37	78
N. Main St	SB T	33.6	C	0.67	259	27.1	C	0.39	162
N. Main St	SB R	28.7	C	0.43	103	24.8	C	0.17	45
OVERALL		**25.7**	**C**			**28.9**	**C**		
3. North Main Street @ Center Street (Stop-Controlled)									
Center St	NB R	9.1	A	0.01	0	11.0	B	0.02	3
Center St	SB R	10.7	B	0.05	5	9.8	A	0.06	5
OVERALL		**0.7**	**A**			**0.8**	**A**		
4. North Main Street @ Parker Street and Betton Street (Signalized)									
Betton St	EB L/T	19.8	B	0.02	28	15.5	B	0.02	34
Betton St	EB R	19.9	B	0.02	41	15.9	B	0.04	52
Parker St	WB L/T/R	20.9	C	0.28	47	16.0	B	0.21	55
N. Main St	NB L	19.7	B	0.55	151	20.2	C	0.55	118
N. Main St	NB T/R	3.2	A	0.15	55	5.4	A	0.40	135
N. Main St	SB L/T/R	18.8	B	0.70	222	15.3	B	0.58	201
OVERALL		**16.8**	**B**			**12.9**	**B**		
5. North Main Street / South Main Street @ Wilson Street (Signalized)									
Wilson St	EB L	36.5	D	0.35	84	93.6	F	0.98	313
Wilson St	EB T	25.2	C	0.51	231	29.7	C	0.61	266
Wilson St	EB R	11.8	B	0.09	31	16.0	B	0.35	124
Wilson St	WB L	40.5	D	0.41	64	42.0	D	0.55	120
Wilson St	WB T/R	29.6	C	0.60	219	36.6	D	0.77	294
S. Main St	NB L	56.5	E	0.83	276	63.9	E	0.85	278
S. Main St	NB T/R	27.2	C	0.71	450	31.9	C	0.72	435
N. Main St	SB L	40.6	D	0.40	67	41.4	D	0.34	73
N. Main St	SB T	27.6	C	0.59	265	36.3	D	0.75	367
N. Main St	SB R	13.5	B	0.11	36	14.5	B	0.08	35
OVERALL		**28.9**	**C**			**37.9**	**D**		
6. Wilson Street @ Parker Street (Stop-Controlled)									
Wilson St	EB L	8.1	A	0.00	0	8.4	A	0.01	0
Parker St	SB L/R	16.1	C	0.10	8	19.1	C	0.13	10
OVERALL		**0.7**	**A**			**0.7**	**A**		

Delay: Delay in seconds per vehicle LOS: Level of Service according to HCM v/c: Volume to Capacity Ratio Queue 95th%: Queue in feet per lane: 95th percentile (25 feet per vehicle)

Bicycle and Pedestrian Infrastructure and Operations

One of Downtown Brewer's highlights in transportation infrastructure is the Brewer Riverwalk, a multiuse path along the Penobscot River, beginning at the intersection of Betton Street and Penobscot Street to the north and continuing to Burr Street and South Main Street at its southern terminus, approximately 0.60 miles long. However, there are no on-street or off-street bicycle facilities provided strictly within the bounds of the Study Area. The city has shown tremendous interest to expand their bicycle infrastructure off of the success of the Brewer Riverwalk trail and encourage multi-use transportation through the Downtown area.

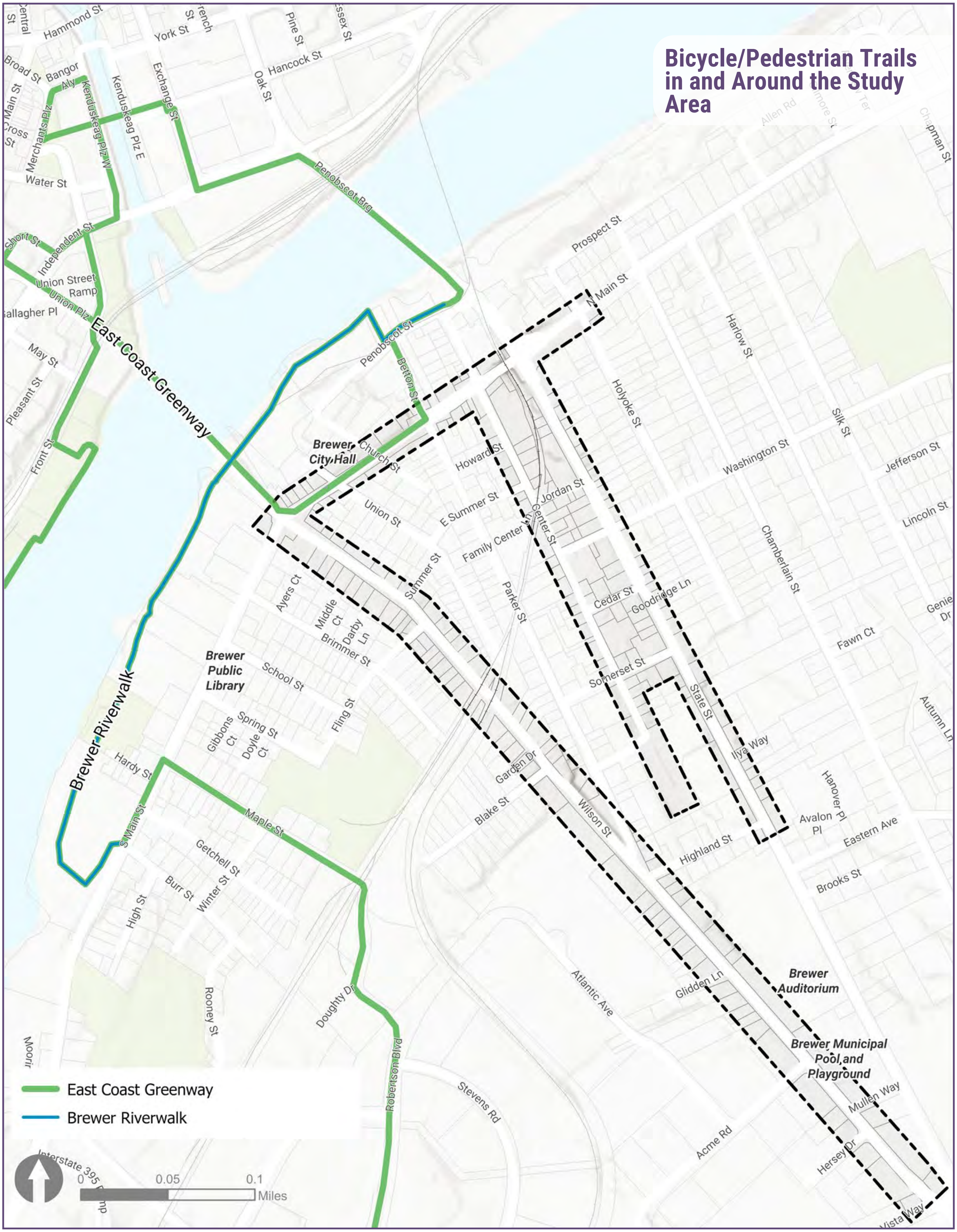
The East Coast Greenway, a 3,000-mile continuous multi-use route for biking, walking, and other activities between Florida and Maine, passes through Brewer via the Riverwalk trail, as well as an alternate route continuing on Betton Street, North Main Street between Betton Street and Wilson Street, and Wilson Street to Bangor.

To gain a holistic understanding of the infrastructure in the Study Area affecting pedestrians, a desktop asset analysis was completed, identifying sidewalk gaps, crosswalks, curb cuts, on-street parking, and wayfinding signage. This full analysis can be found in Appendix B. Significant sidewalk gaps are present on North Main Street between Center Street and State Street, as well as along Center Street, Jordan Street and Washington Street. There are also many large curb cuts, particularly on Wilson Street and State Street, which makes the environment less safe for pedestrians.

The presence of sidewalks does not mean conformance to the most current Public Rights-of-Way Access Guidelines (PROWAG) for accessibility, Manual of Uniform Traffic Control Devices (MUTCD) for signing, or access management guidelines for driveways along major roadways, as there are many areas where some of these guidelines are not met:

- Some sidewalks are noted to have less than four feet of effective width available for navigating utility poles, signs, and other impedances to pedestrians.
- Maximum acceptable grades for sidewalk cross-slopes and curb ramps are not always met.
- Detectable warning surfaces at pedestrian crossings of the roadway are not always present.
- The minimum seven-foot vertical clearance to the bottom of signs along pedestrian access routes / sidewalks and crosswalks is not always present.
- There are excessive access driveway openings onto roadways with no curbing or delineation of roadway and sidewalk.

Due to recent safety-based work on the traffic signals in Brewer, it is notable that steps were made by the city to improve the accessibility of pedestrian push buttons throughout the Study Area.


Bicycle/Pedestrian Trails in and Around the Study Area
East Coast Greenway
Brewer Riverwalk
Brewer City Hall
Brewer Public Library
Brewer Auditorium
Brewer Municipal Pool and Playground
0
0.05
0.1
Miles
N Main St
Penobscot St
Penobscot Brg
Center St
State St
Wilson St
S Main St
Maple St
Robertson Blvd
Washington St
Chamberlain St
Holyoke St
Harlow St
Silk St
Jordan St
Church St
Summer St
Parker St
Garden Dr
Highland St
Glidden Ln
Atlantic Ave
Acme Rd
Stevens Rd
Doughty Dr
Hersey Dr
Mullen Way
Vista Way
Exchange St
Kenduskeag Plz W
Independent St
Union Street Ramp
Water St
Front St

Transit

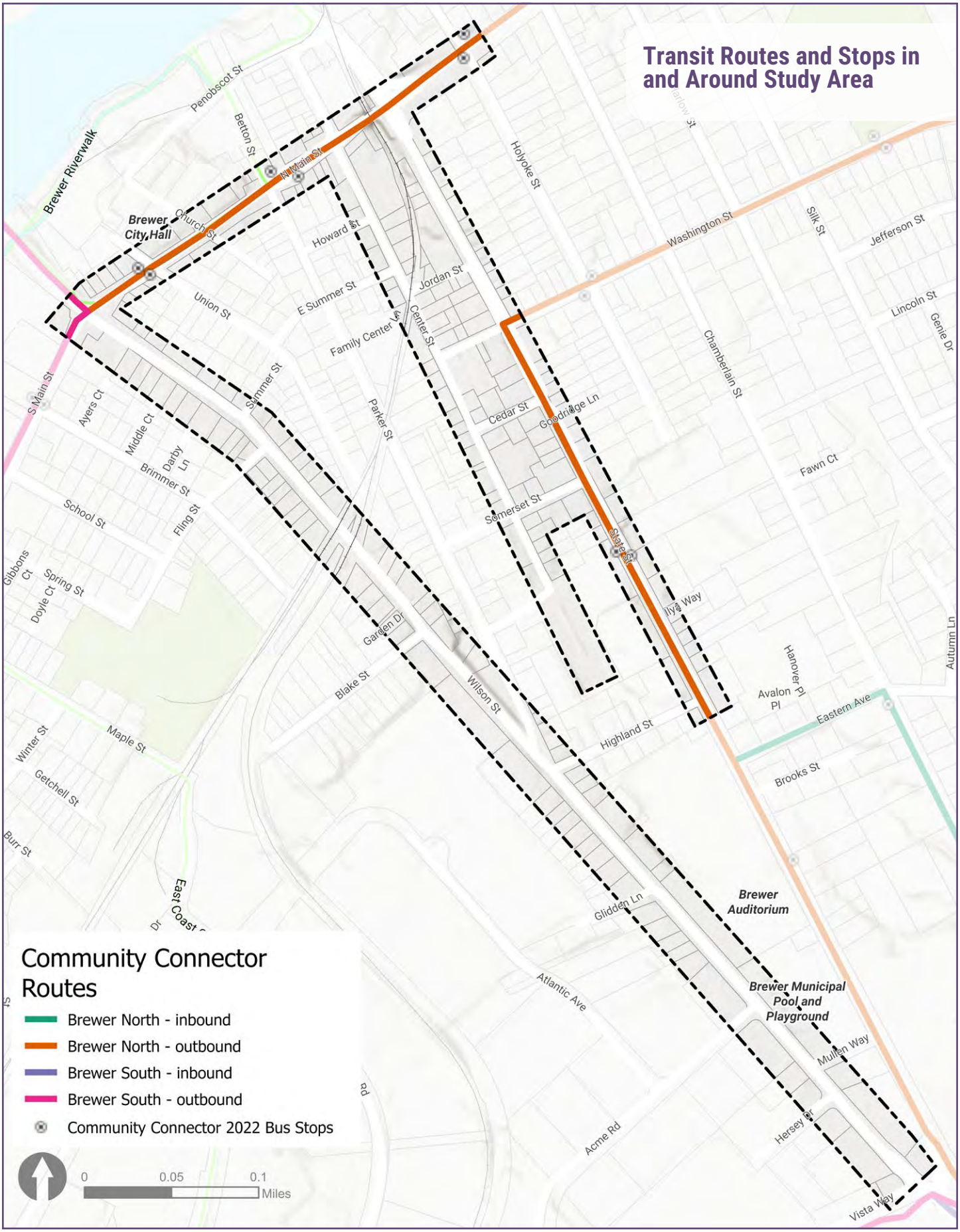
The only public transportation in Brewer is the Community Connector Bus based in Bangor, which has two routes in Brewer: Brewer North and Brewer South. Brewer South is in the Study Area at the intersection of Wilson and North Main Street / South Main Street. Brewer North is in the Study Area along the length of North Main Street and in the southern portion of State Street. In June 2024, the Community Connector transitioned from a flagging system to having fixed stops across its entire system. Both routes in Brewer have hourly service. The only bus shelter in the project area is on State Street in front of the Village Centre apartment complex. Ridership on both routes declined from 2019 to 2023 but is starting to increase again in 2024. Given the Covid-19 pandemic, this dip in ridership is expected and consistent with national trends.

Annual Transit Ridership - Brewer North	
Fiscal Year	Annual Ridership
2019	53,272
2020	48,652
2021	31,853
2022	30,936
2023	28,510
2024	40,506

Source: BACTS

Annual Transit Ridership - Brewer South	
Fiscal Year	Annual Ridership
2019	46,997
2020	40,822
2021	30,849
2022	30,909
2023	28,855
2024	37,269

Source: BACTS


Transit Routes and Stops in and Around Study Area
Community Connector Routes
Brewer North - inbound
Brewer North - outbound
Brewer South - inbound
Brewer South - outbound
Community Connector 2022 Bus Stops
0
0.05
0.1
Miles
Brewer Riverwalk
Penobscot St
Berton St
N Main St
Church St
Brewer City Hall
Howard St
Union St
E Summer St
Family Center
Jordan St
Center St
Holyoke St
Washington St
Silk St
Jefferson St
Lincoln St
Genie Dr
Chamberlain St
Fawn Ct
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Spring St
Garden Dr
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Wilson St
Slate St
Ilya Way
Hanover Pl
Avalon Pl
Autumn Ln
Eastern Ave
Highland St
Brooks St
Winter St
Maple St
Getchell St
Burr St
East Coast
Glidden Ln
Brewer Auditorium
Atlantic Ave
Brewer Municipal Pool and Playground
Mullen Way
Hersey St
Acme Rd
Vista Way

Road Safety Assessment

Crash History and High Crash Locations

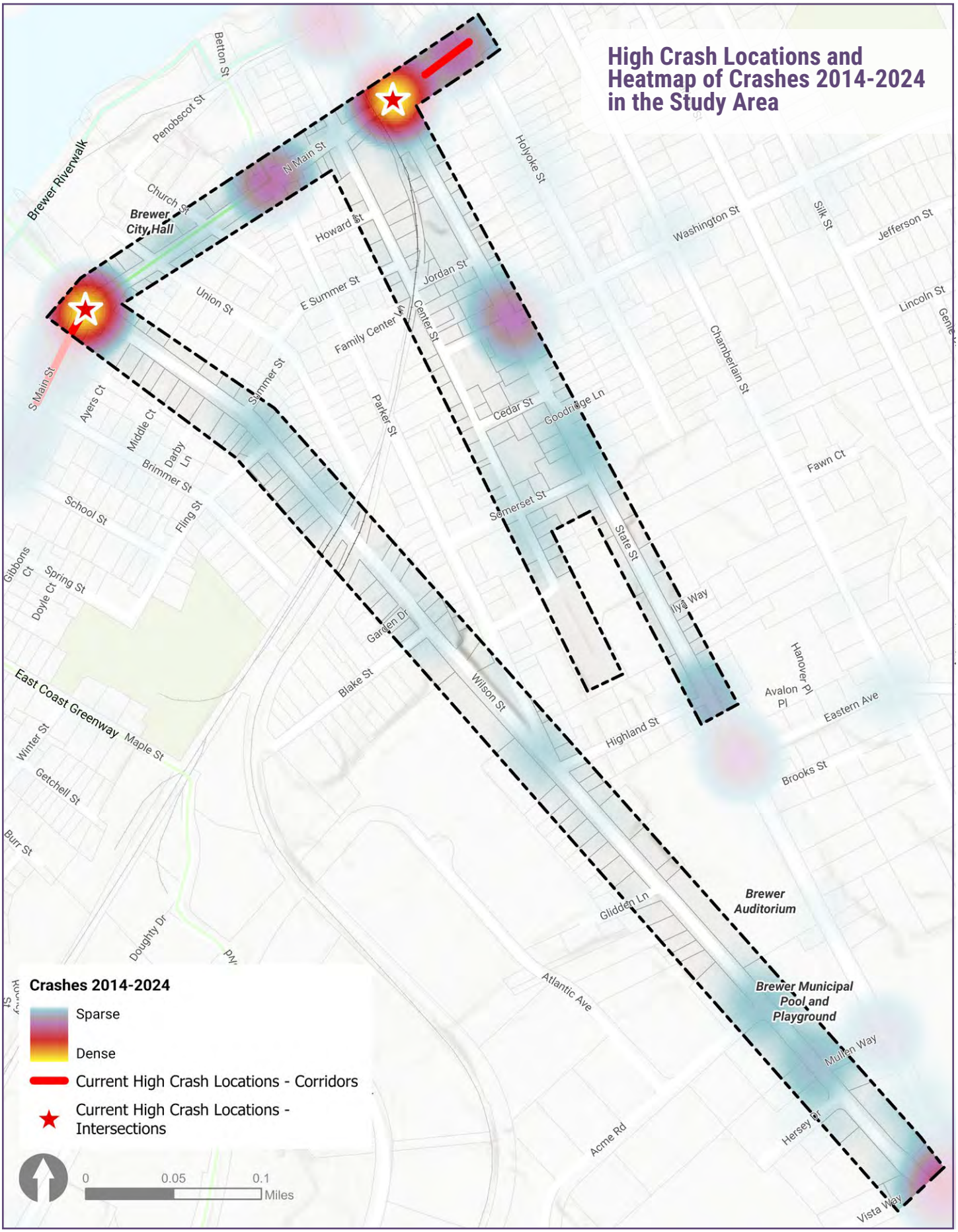
MaineDOT provides a public map, the Maine Public Crash Query Tool, using Geographic Information Systems (GIS) to identify and make available crash data throughout the State of Maine for download and analysis.

This resource also incluses High Crash locations. As referenced by the Androscoggin Transportation Resource Center, High Crash Locations (HCLs) are locations that have eight or more traffic crashes and a Critical Rate Factor (CRF) greater than 1.00 in a three-year period. A highway location with a CRF greater than 1.00 has a frequency of crashes that is greater than the statewide average for similar locations. A CRF is a statistical measure to determine the "expected crash rate" as compared to similar intersections in the State of Maine.

For the years of 2020 through 2023, the following locations were identified as HCLs in the Study Area:

- North Main Street at State Street (Intersection)
- North Main Street, between State Street and Holyoke Street (Segment)
- North Main Street / South Main Street at Wilson Street (Intersection)

In addition to the High Crash Locations within the Study Area, there appears to be a concentration of crashes at the intersection of North Main Street and Betton Street and State Street and Washington Street. There is also a less pronounced concentration of crashes along Wilson Street, particularly near the intersections of Summer Street and Parker Street.


High Crash Locations and Heatmap of Crashes 2014-2024 in the Study Area
Crashes 2014-2024
Sparse
Dense
Current High Crash Locations - Corridors
Current High Crash Locations - Intersections
0
0.05
0.1
Miles
Brewer Riverwalk
Brewer City Hall
Brewer Auditorium
Brewer Municipal Pool and Playground
East Coast Greenway
Betton St
Penobscot St
Church St
N Main St
Howard St
Holyoke St
Washington St
Silk St
Jefferson St
Lincoln St
Union St
E Summer St
Jordan St
Family Center Way
Center St
Chamberlain St
S Main St
Ayers Ct
Middle Ct
Summer St
Parker St
Cedar St
Goodridge Ln
Fawn Ct
Darby Ln
Brimmer St
School St
Fling St
Somerset St
State St
Ilya Way
Gibbons Ct
Doyle Ct
Spring St
Garden Dr
Blake St
Wilson St
Hanover Pl
Avalon Pl
Eastern Ave
Highland St
Brooks St
Winter St
Maple St
Getchell St
Burr St
Glidden Ln
Doughty Dr
Atlantic Ave
Mullen Way
Hersey St
Acme Rd
Vista Way

Road Safety Audit

A Road Safety Audit (RSA) was conducted on May 24, 2024 for both the Brewer VPI project and South Main Street Corridor Study. See **Appendix B** for a complete summary of the RSA. Representatives from MaineDOT, the City of Brewer, and Stantec met at the Joseph L. Ferris Community Center at 318 Wilson Street. After introductions and presenting the data collected before the RSA, the RSA team conducted a site visit to evaluate and observe four locations along North Main Street prioritized for the audit. After visiting the locations, participants discussed their observations of the areas and identified positive elements of the existing infrastructure as well as safety concerns and deficiencies. The following locations were visited during the RSA field audit and discussed later in the return to the Community Center:

- Site 1 – North Main Street at State Street
- Site 2 – North Main Street between State Street and Holyoke Street
- Site 3 – North Main Street between State Street to Benton Street / Parker Street
- Site 4 – North Main Street / South Main Street at Wilson Street

Site 1 – North Main Street at State Street

North Main Street at State Street is a signalized intersection. The State Street (eastbound), State Street (westbound) and North Main Street (northbound) approaches all consist of one through lane and one shared right/through lane. North Main Street (southbound) consists of a left turn lane, a through lane and a right-turn, yield controlled slip lane. This slip lane has pedestrian crossing signs with LED-enhancements when a pedestrian push button is actuated. There are no bike lanes present for any approach.

Uneven queuing was observed for left turning vehicles from State Street to North Main Street and N. Main St. (northbound) through and through/right lane which causes traffic to back up in the area. The crossing ramps at all corners could use a review of conformance with the most current PROWAG and MaineDOT's "Minimum ADA Requirements for Pedestrian Facilities" D\ design guidance for accessibility. As the field walk for the RSA was conducted after a storm, existing drainage issues were able to be documented and discussed by the RSA team. After the RSA, the team reviewed the Pros and Cons observed at each site.

Site 1 – North Main Street at State Street	
Pros	Cons
» Adaptive Signal system went online May 2024	» Drainage issues at pedestrian crossing landings
» City wayfinding signs present	» Accessible sidewalk grades / condition of sidewalk
» Pedestrian crossings present for all available legs	» Grades exist on all approaches
» Restricted left-turns based on sightlines	» Inadequate lighting
» No right turn on red	» Uneven queuing for State Street EB Left Turns
» MaineDOT/Brewer have implemented pedestrian improvements using signs and signal equipment.	» Uneven use of North Main Street NB Through and Through-Right

Site 2 – North Main Street between State Street and Chamberlain Street

The High Crash Location (HCL) segment of North Main Street north of State Street was reviewed, which included the unsignalized intersections with Holyoke Street, Prospect Street, and Chamberlain Street, as well as two access driveways for the Irving / Circle K.

The crossing at Holyoke Street was noted by local RSA attendees as a relatively frequent pedestrian crossing by residents in the adjacent neighborhoods accessing the Irving / Circle K convenience store. Pedestrian crossing signs exist at the painted crosswalks at Holyoke Street and Chamberlain Street.

During the RSA, it was observed that the pedestrian crossings and stop signs in the area need to be updated to meet MUTCD guidelines, including sign dimensions, minimum vertical clearance above the adjacent grade, and improved crosswalk markings. The paved roadway of this section of North Main Street was considered by attendees to be rather wide, especially for the mid-block pedestrian crossings. Methods to reduce the pavement width to shorten crossings and provide positive guidance for speed regulation should be considered. The existing lighting along North Main Street is high mounted luminaires that provide lighting for the travel way but do not provide enough pedestrian scale lighting.

Site 2 – North Main Street between State Street and Chamberlain Street	
Pros	Cons
» Pedestrian crossings are heavily preferred/used	» Pedestrian signs need to be per MUTCD dimensions
» Pedestrian signage is present	» Pedestrian scale lighting is needed
» There is a lot of pavement to work with for making improvements	» Needs gateway treatment to slow traffic
» A new Freight Plan is expected in 2 Years	» Freight Plan is from the early 2000s
	» Proximity of crosswalk to gas station entrance

Site 3 – North Main Street from State Street to Betton Street and Parker Street

This portion of North Main Street crosses Center Street, the major north-south roadway through the city's Historic Downtown. During the RSA, the team witnessed pedestrians cross at the Center Street intersection even without pedestrian facilities provided for the crossing. Local members of the RSA team confirmed that this is a common occurrence. There appears to be limited southbound stopping distance and sightlines available due to the road and bridge grades required for adequate clearance over the active railroad.

It was observed that the pavement markings and signing in the area needs to be updated to meet MUTCD guidelines, including sign dimensions and crosswalk conditions. The roadway segment's sidewalks were observed to need further PROWAG and MaineDOT review for accessibility, including pedestrian ramp grades and placement of existing utility poles and lighting poles that intrude upon minimum passage width. The pavement width of this section of North Main Street was considered by attendees to be rather wide, especially for potential mid-block pedestrian crossings. Methods to reduce the paved area to shorten crossing distances and provide positive guidance for speed regulation should be considered.

The RSA team observed that many vehicles entered North Main Street southbound from Downtown Brewer via right turns from Center Street, traveled the 50 feet south to a break in the North Main Street raised median, then made a U-turn movement to proceed north on North Main Street.

Local members of the RSA team also noted incidents of North Main Street southbound vehicles making right turns into Center Street to access the Historic Downtown, even though this is a prohibited movement as Center Street is an eastbound-only roadway in this area and the vehicles are illegally traveling westbound. The only notice of this prohibition is a single sign showing this prohibition at the intersection and a painted gore supplementing this message, however there is no physical barrier that prevents this movement.

Site 3 – North Main Street from State Street to Betton Street and Parker Street	
Pros	**Cons**
» Presense of wayfinding	» U-Turns through median break
» Right-Turn Only from side streets, reinforced by a median, reduces conflicts	» Width of mouth of Center Street
» Realigned Betton Street improves operations at Parker Street	» Lighting
» Extra pavement width allows for some modifications	» No pedestrian/bicycle crossing, however people cross anyway
» Parker Street pedestrian improvements underway/ planned	» Median signs and other ways to delineate median
» Historic District adds local character	» Grades at North Main Street
	» Evaluate Center Street and Parker Street improving pedestrian/bike circulation and connection to Riverwalk

Site 4 – North Main Street / South Main Street at Wilson Street

The signalized intersection at North Main Street / South Main Street and Wilson Street is a High Crash Location. The North Main Street and Wilson Street eastbound approaches consist of a left turn lane, a through lane and a right turn lane. South Main Street and Wilson Street westbound consist of one left turn lane and one shared through/right lane. A public parking lot is provided at the northeast corner of the intersection and the parking lot at the southwest corner of the intersection is for the High Tide Restaurant and Bar.

A driveway is located in the northwest corner of the intersection, with access located past the stopbar for the North Main Street approach to the signalized intersection. The driveway is uncontrolled, with no signal indication nor intersection control sign provided. Observed during the RSA visit and noted by local stakeholders, access into and out of the driveway is difficult for vehicles that require access to the businesses and residences on this driveway.

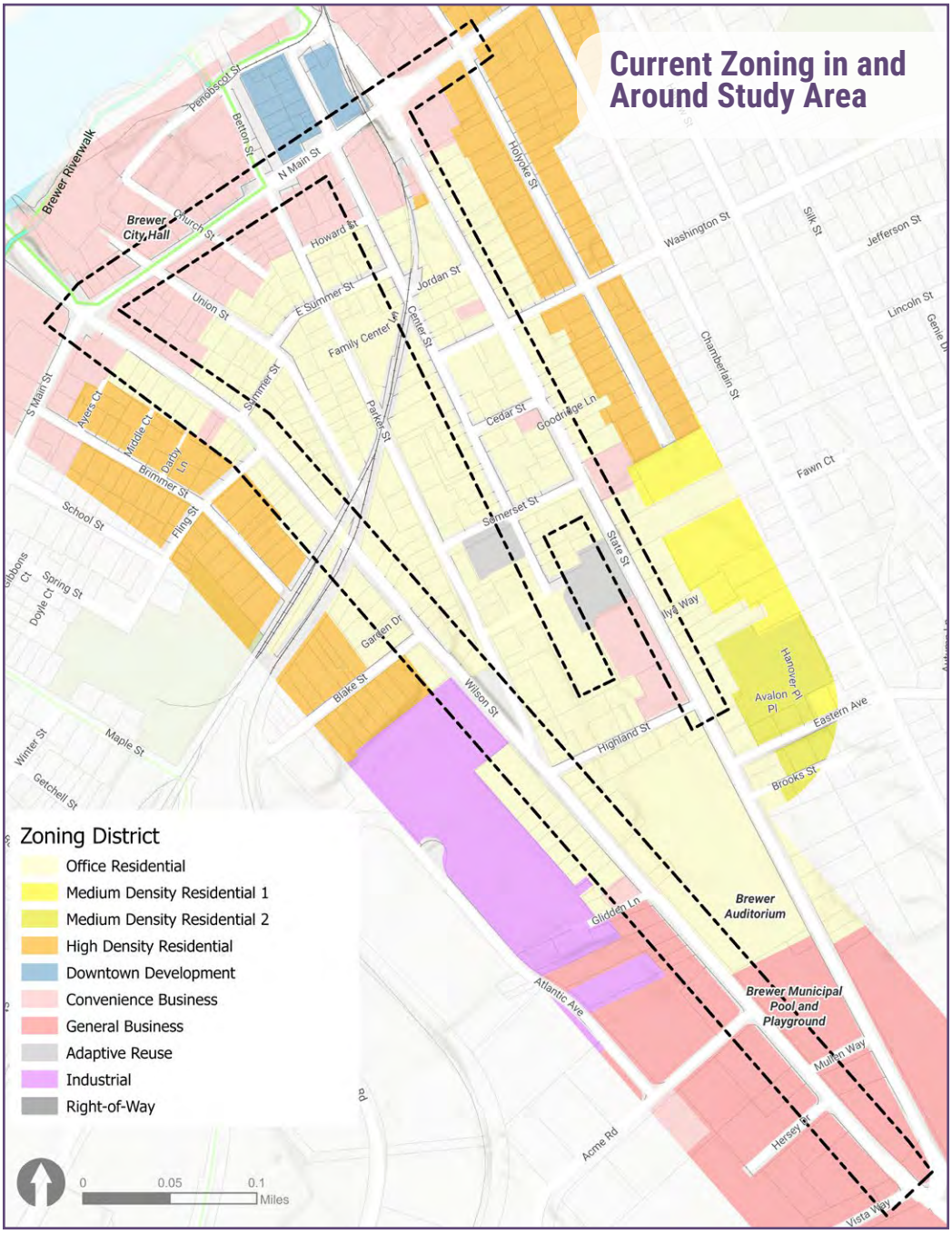
Although there is ample access for pedestrians in the area, lighting is lacking for safe crossings at night. The curb ramps at this site are causing drainage issues. The intersection is very wide which allows for options for possible reworking of its pedestrian crossings.

Site 4 – North Main Street / South Main Street at Wilson Street	
Pros	Cons
» Pedestrian crossings on all side	» Pedestrian curb ramps have poor drainage
» Access to Riverwalk	» Access to/from High Tide and apartment via uncontrolled driveway near the intersection (NW corner)
» Access to city-owned parking	» Pavement width is excessive for pedestrian crossings
» City provided wayfinding signs	» Placemaking /gateway is difficult
» Roadway is wide enough to accomodate crossing improvements	» “Big” intersection requires difficult compromises to reduce its size
» City landscaping present	» Pedestrian-scale lighting improvements are needed

Land Use Analysis

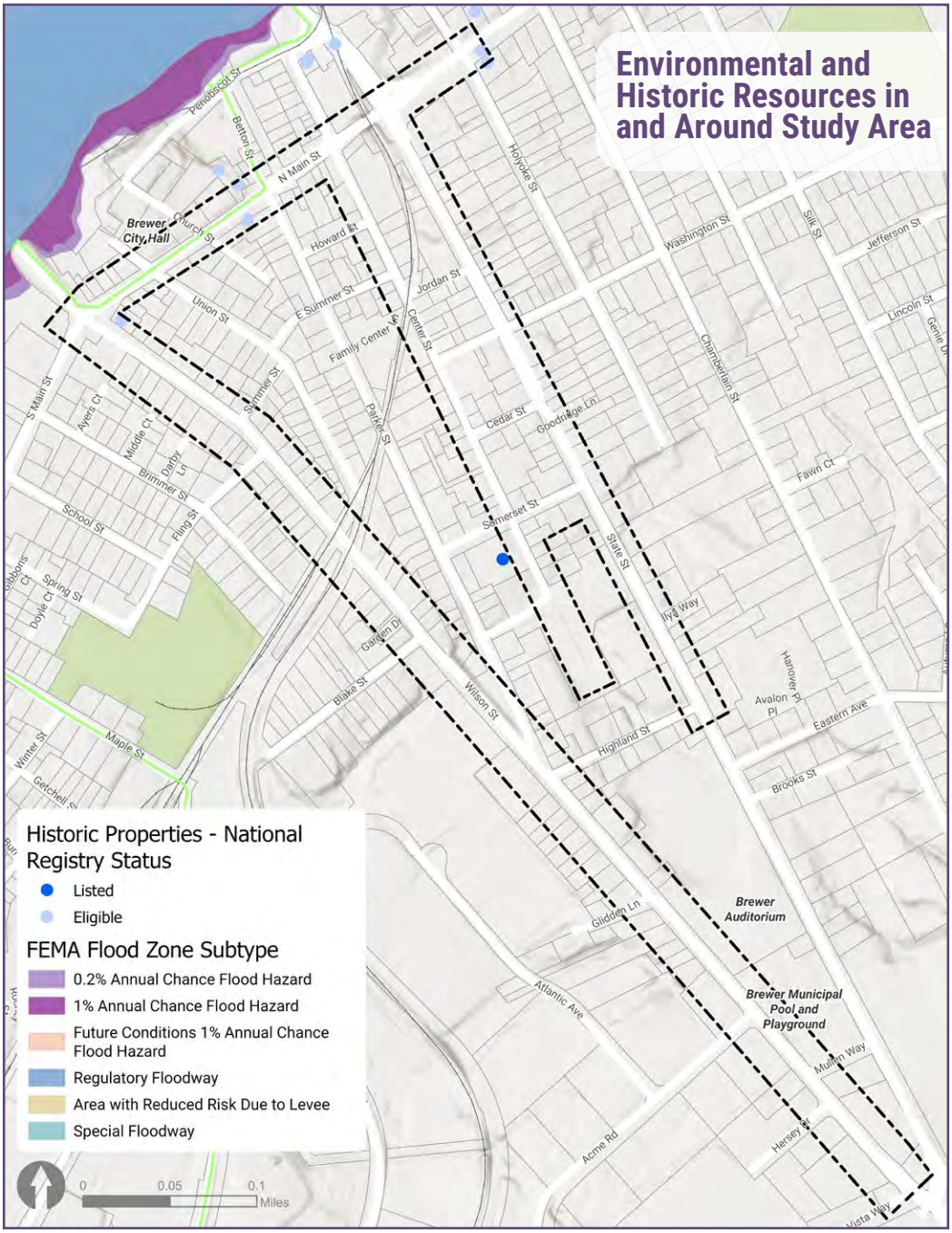
Zoning and Current Uses

Existing zoning and current land uses were reviewed to gain an understanding of both the current and potential future uses that impact Brewer's multi-modal networks. The North Main Street Corridor is primarily zoned Convenience Business. Center Street north of North Main Street is zoned Downtown Development. Most of the rest of the Study Area is zoned for residential use, with occasional small pockets of business zoning within residential zones. Current land use largely conforms to existing zoning, with a variety of commercial and retail uses along North Main Street, and mostly residential uses in the rest of the Study Area. Street character generally matches the zoning and land use patterns, with wider commercial streets on North Main and Center north of there, while most other streets are narrower and suburban in character.



Environmental and Historic Resources

A desktop environmental and historic resources screening was performed for the Study Area to identify any environmental characteristics of concern. The characteristics searched for include historic properties, aquifers, wildlife habitats, FEMA flood zones, conservation zones, and wetlands. The characteristics found came from the following sources: Maine Department of Environmental Protection data maps, Maine Fish and Wildlife maps, the National Register of Historic Places and the City of Brewer's Axis GIS Map. While none of the project area itself is in a FEMA Flood Zone, the area near the river, including the Brewer Riverwalk is in the FEMA Flood Zone Subtype with a 1% Annual Chance Flood Hazard. Additionally, there are several properties eligible for the National Historic Registry in and around the Study Area, but the only listed property is the former Brewer High School located at 5 Somerset Street.



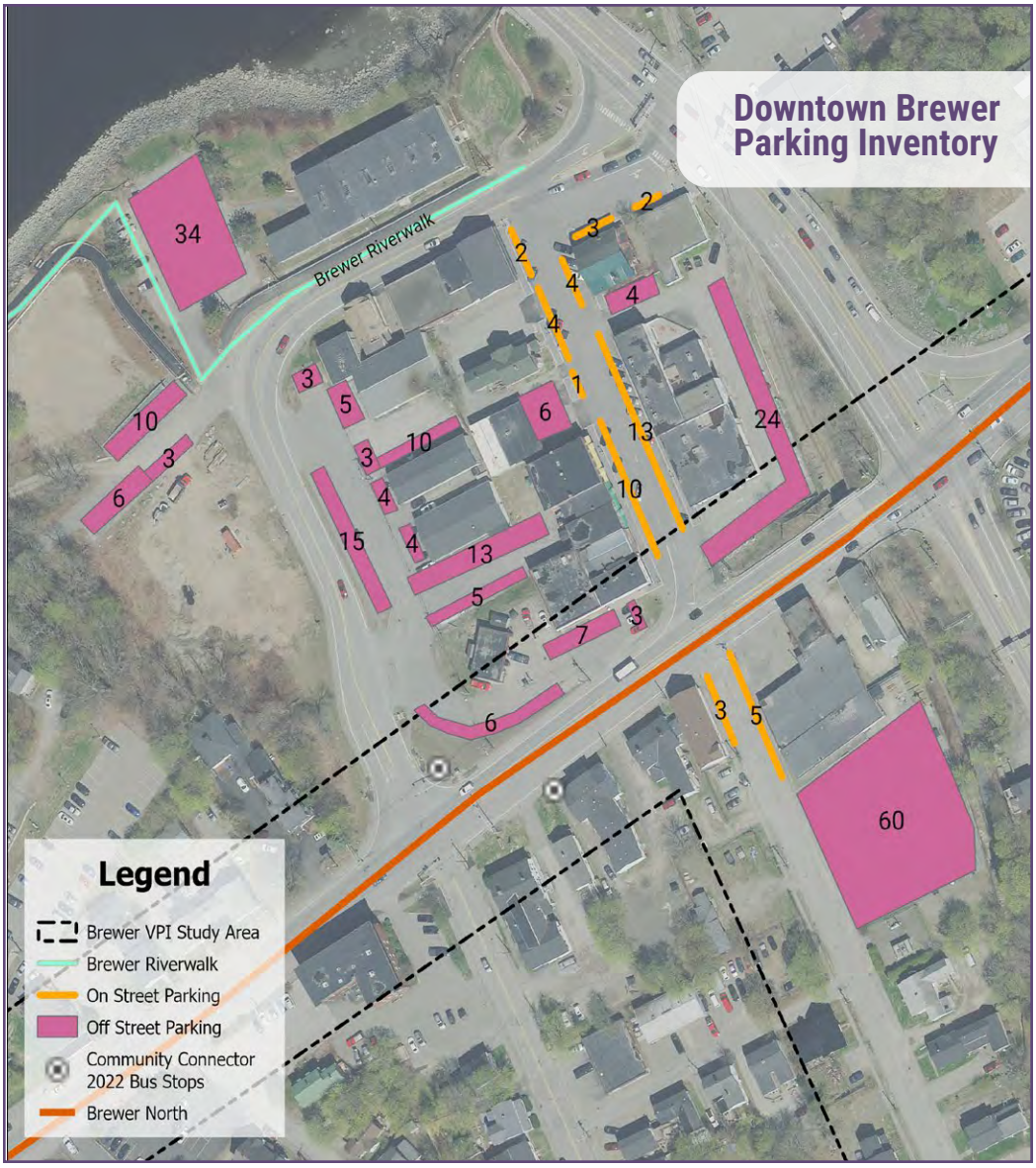
Downtown Parking

To better understand parking in the downtown portion of the Study Area, Stantec developed a parking inventory and created a shared parking demand model to demonstrate existing demand and project future needs as the area grows and changes. There is a total of 272 parking spaces in this area. This parking is a combination of public and private. Most of the off-street parking is privately owned.

Shared Use Parking Model

An analysis of the existing parking supply's ability to accommodate future development in Downtown Brewer was conducted using a customized shared parking demand model. A core component of this analysis is an understanding of the land uses present in the community. Parcel-level assessing data from the city was used to determine the total quantities of developed and occupied properties for each land use type.

A typical approach to estimating parking demand assumes that each land use in a downtown needs its own supply of parking at all times and thus simply adds together the amount of parking demand "required" for each use to estimate demand. This level of analysis assumes

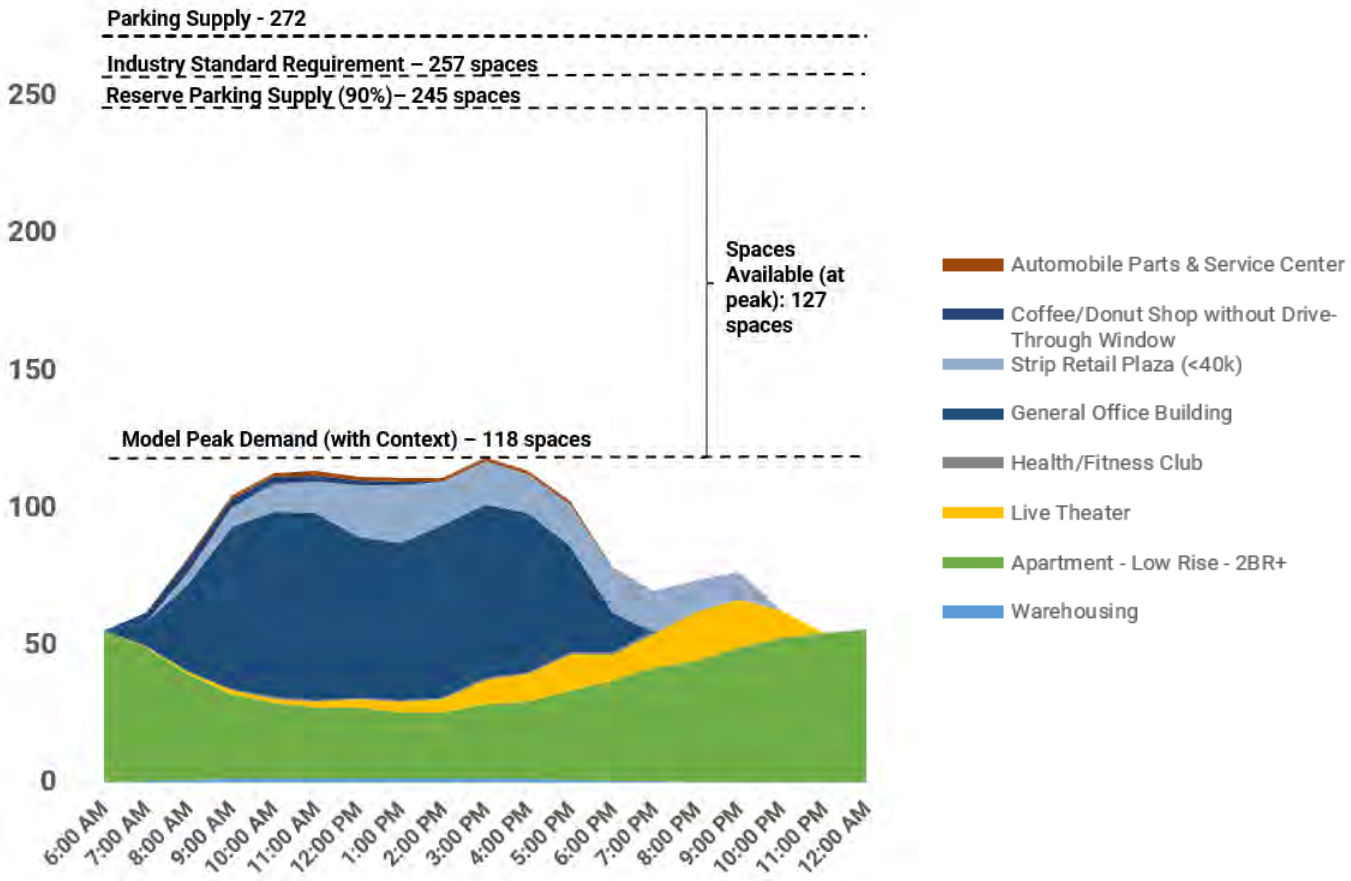


that demand for each land use is constant throughout the day and that the parking supply for each parcel is at a quantity needed to accommodate its highest demand. This industry standard approach would yield 257 spaces given the Study Area's land uses, which is already below the existing inventory of 272 spaces.

An analysis based on "observed demand" more accurately reflects occupancy patterns that vary by land use throughout the day and considers the local land use context. Using Urban Land Institute (ULI) shared parking methodologies, Stantec applied a time-of-day percentage to the peak parking demand rate for each land use to create a more realistic estimate of demand in the mixed-use environment of Downtown Brewer. This method estimates a peak demand of 118 cars, leaving 154 vacant spaces.

Although policy changes and wayfinding may help improve turnover along Center Street, it is clear that the Downtown has ample supply for its current mix of uses and has plenty of room to grow without the need for more parking.

Brewer Historic Downtown	
Land Use	Size
Apartments	72 units
Automobile Parts & Service Center	1,334 Square Feet
Coffee/Donut Shop without Drive-Through Window	885 Square Feet
General Office Building	21,706 Square Feet
Retail	14,749 Square Feet
Health/Fitness Club	2,656 Square Feet
Live Theater	125 Seats
Warehousing	44,654 Square Feet




HUCKLEBERRIES
JCT
ROBINS
BARBER SHOP
HUCKLE BERRIES
PUSH BUTTON TO TURN ON WARNING LIGHTS

5. Future Conditions

Stantec estimated future traffic volumes within the Study Area to ensure the recommendations both meet the projects' goals and account for changes in traffic volumes to the year 2045. The full future conditions memorandum can be found in **Appendix C**.

Stantec reviewed publicly available resources and MaineDOT traffic models to project traffic flow to 2045. Stantec evaluated two potential future outlooks of traffic volumes in the city: A standard MaineDOT-based Regional Growth outlook and a local outlook.

Interstate 395 Extension

The construction of the I-395 Extension from its current terminus at the interchange with South Main Street in Brewer to a new terminus with Route 9 in Eddington is planned for completion in 2025. Per the I-395 / Route 9 Transportation Study's Environmental Impact Statement by MaineDOT, this extension is anticipated to reduce traffic in the downtown districts of Brewer, including a reduction of 12.4 percent of average annual daily traffic along Route 9 (South Main Street and North Main Street) between Brewer and Eddington. In addition, this extension is anticipated to reduce average annual daily truck traffic by up to 32.5 percent through downtown Brewer. For the purpose of this study, Stantec assumed a general ten percent (10%) reduction in general traffic when the I-395 / Route 9 connector is completed.

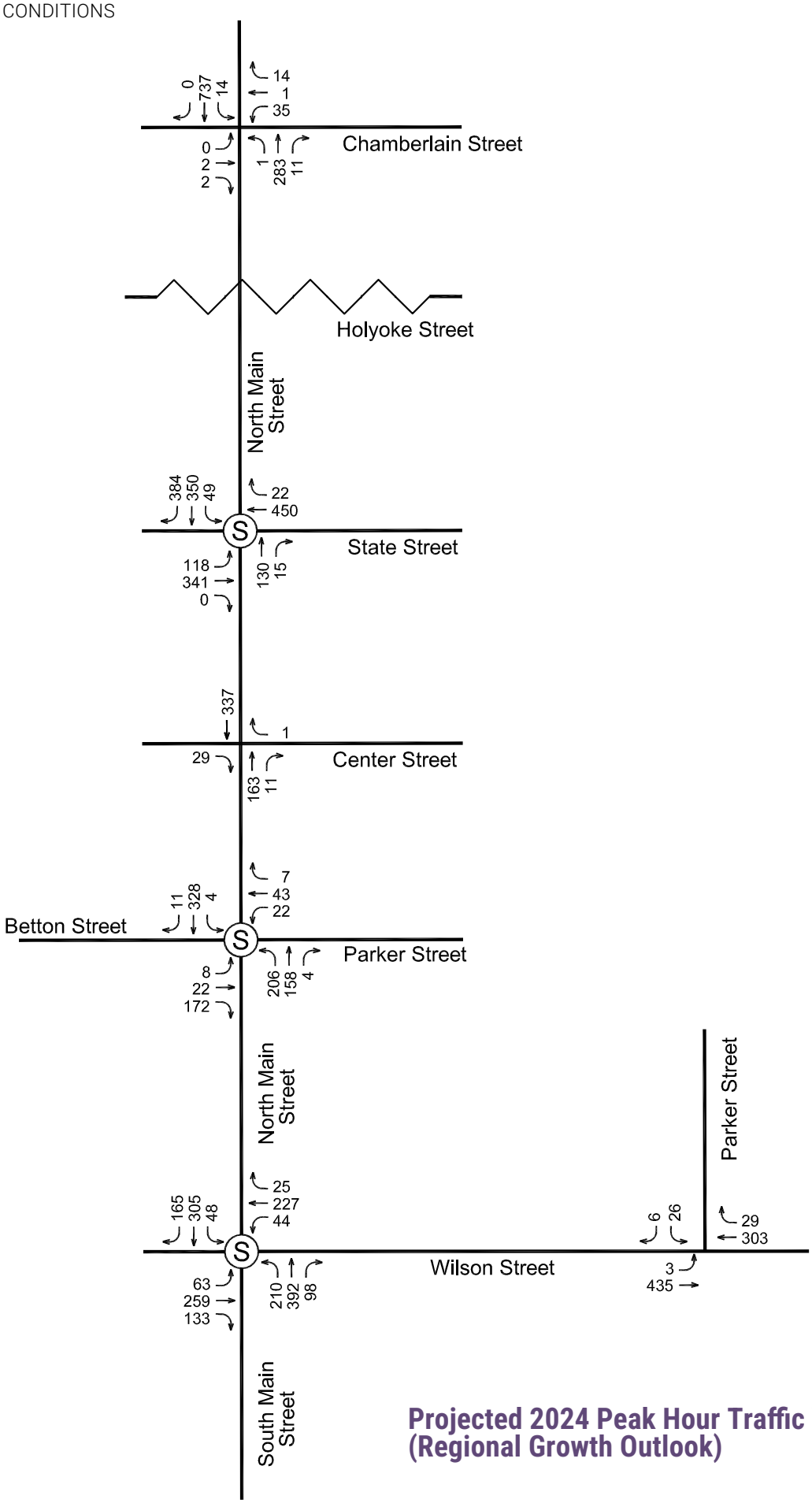
About one year after the completion of the I-395 Extension, MaineDOT will be collecting traffic data throughout the city. This data will be used to assess the changes in traffic flows in Brewer and can be used for future evaluations of the alternatives from this study.

Local and Regional Growth Outlooks

For the Regional Growth outlook, Stantec used the MaineDOT-recommended average annual growth rate of 0.5% per year alongside the changes in traffic demand due to the completion of the I-395 Extension and Route 9 Connector.

For the Local Growth outlook, Stantec used the actual growth rates from count stations in Brewer as identified in the MaineDOT Future Traffic Model, as these growth rates ranged from 0.01% to 0.14%; relatively stagnant or just above baseline. Stantec then coordinated with the City of Brewer to determine reasonable potential developments in the Study Area that have potential to add specific traffic. This traffic was distributed in kind with current traffic flows throughout the city's roadway network.

When comparing the findings of both methods in evaluating future traffic through Brewer and for use in evaluating design alternatives and right-sizing infrastructure for Brewer's future, Stantec recommends planning for infrastructure evaluations and improvements by using the Regional Growth model to estimate future traffic volumes, which incorporates an overall average annual traffic volume growth rate of 0.5 percent per year. This growth rate is larger than the locally identified annual growth rates along with inclusion of optimistic development construction and trip generation to Brewer's transportation system.



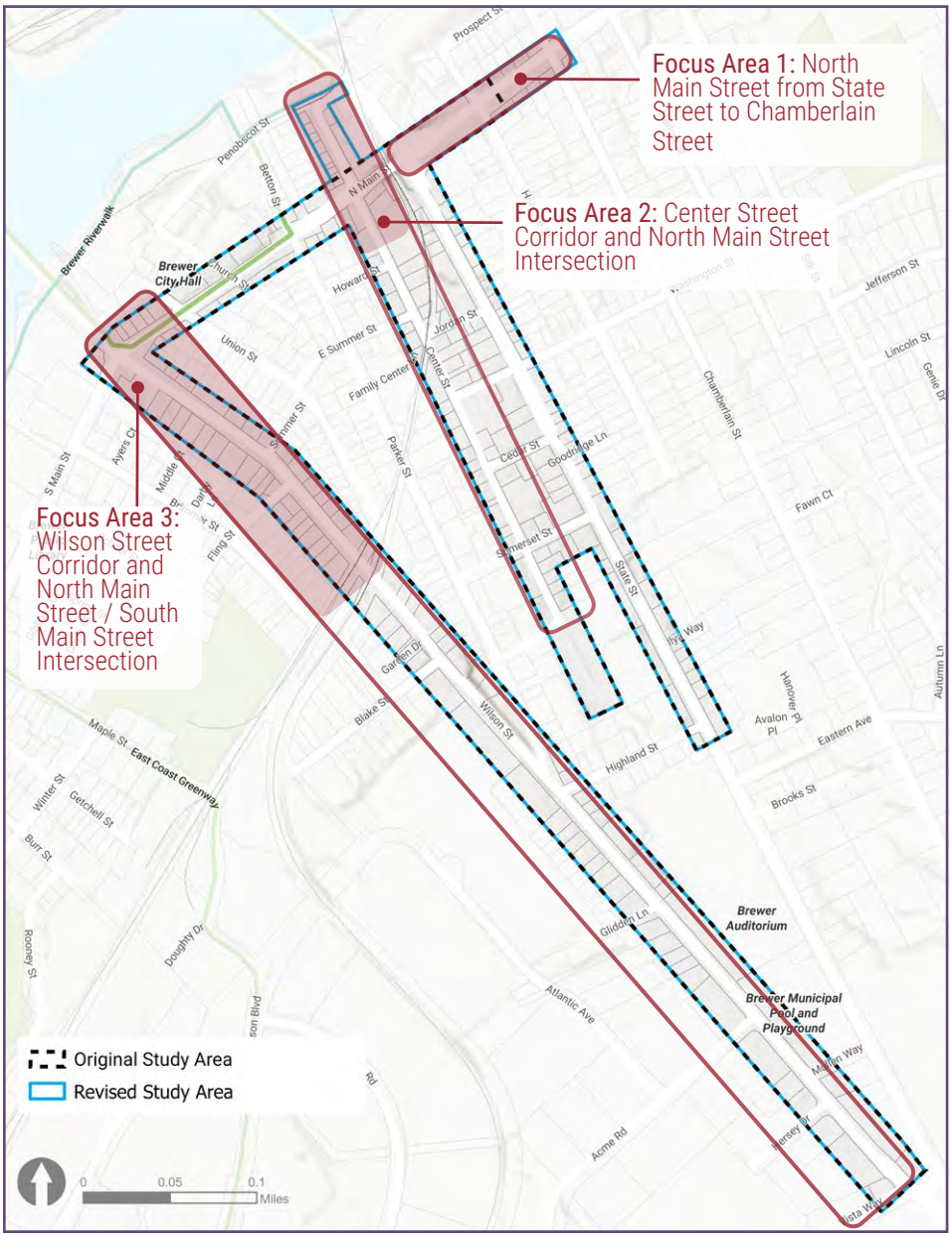
Projected 2024 Peak Hour Traffic Volumes (Regional Growth Outlook)


PARKER ST


START CROSSING
Watch For
Vehicles
DON'T START
Finish Crossing
If Started
TIME REMAINING
To Finish Crossing
DON'T CROSS
PUSH BUTTON
TO CROSS
ONLY
LEFT
ON
ARROW
ONLY
S Main St
N Main St

6. Recommendations

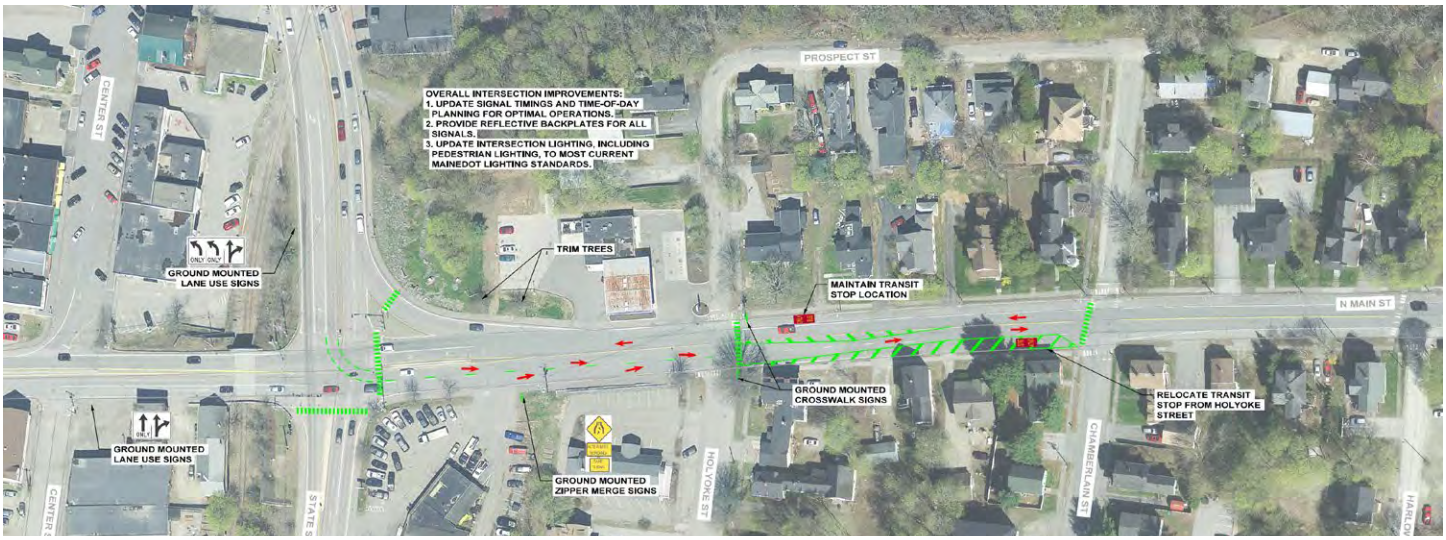
Drawing upon Stantec's analysis of existing and future conditions and feedback from the Study Team and the public, three Focus Areas were identified that represent the locations within the Study Area where transformational change is most needed and desired. Specific recommendations, plans, sketches and renderings are confined to these Focus Areas. In the map below, the solid portion of each Focus Area is shown in concept plans and renderings. Proposed cross sections and planning level cost estimates are available for the outlined portions of each Focus Area. Some more general recommendations relevant to the entire Study Area are also included at the end of this section.



Focus Area 1: North Main Street from State Street to Chamberlain Street

Focus Area 1 covers the stretch of North Main Street from the busy State Street intersection to Chamberlain Street. The intersection of State Street and North Main Street is a High Crash Location and it is one of two local roads that cross the Penobscot River, connecting Brewer and Bangor. The intersection at North Main Street and Holyoke Street has a crosswalk that connects a residential neighborhood to a popular convenience store. This crosswalk is at the top of a hill and traverses three lanes of traffic. There have been numerous safety concerns cited at this location. Stantec evaluated three sets of alternatives for this location, focused on improving safety for all modes of travel, particularly at the State Street intersection and the Holyoke Street crosswalk by slowing and channelizing traffic, while reducing pedestrian exposure.

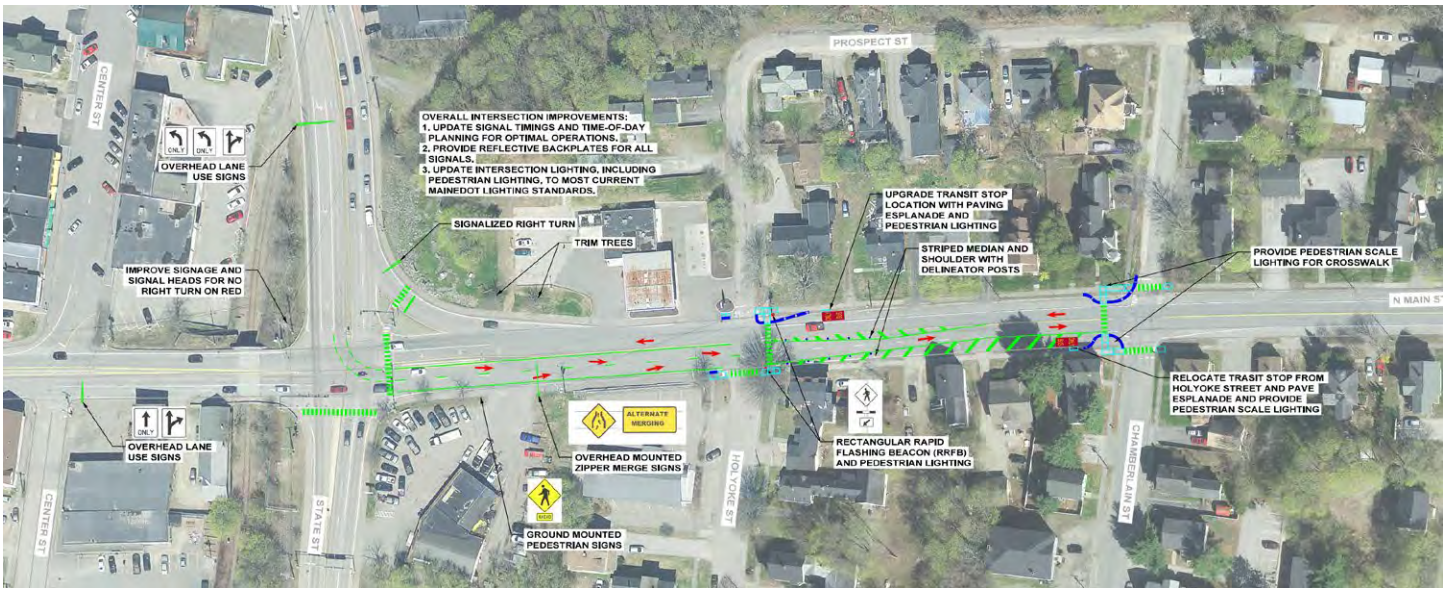
Alternative A



Focus Area 1: Alternative A (low cost / short term)
Key Components
State Street + North Main Street Intersection
» Striping in the intersection for the double left from State Street to North Main Street
» Tree trimming by the Irving gas station
» Optimize traffic signals upon I-395 Extension opening
N. Main St. Corridor (State St. to Chamberlain St.)
» Zipper merge with ground mounted signs
» Crosswalk at Holyoke with ground mounted signs
» Striped median and shoulder
» Relocated transit stop at Chamberlain Street from Holyoke Street for northbound stop

Focus Area 1: Alternative A (low cost / short term)
Pros
» Maintains existing curb line
» Improves safety for double left turns through intersection
» Zipper lane slows traffic and formalizes merge
» Eliminates lane entrapment on North Main Street for right turn on Chamberlain Street
Cons
» Minimal improvement to pedestrian crossing
» Minimal reduction in pavement width for pedestrian crossings and traffic calming

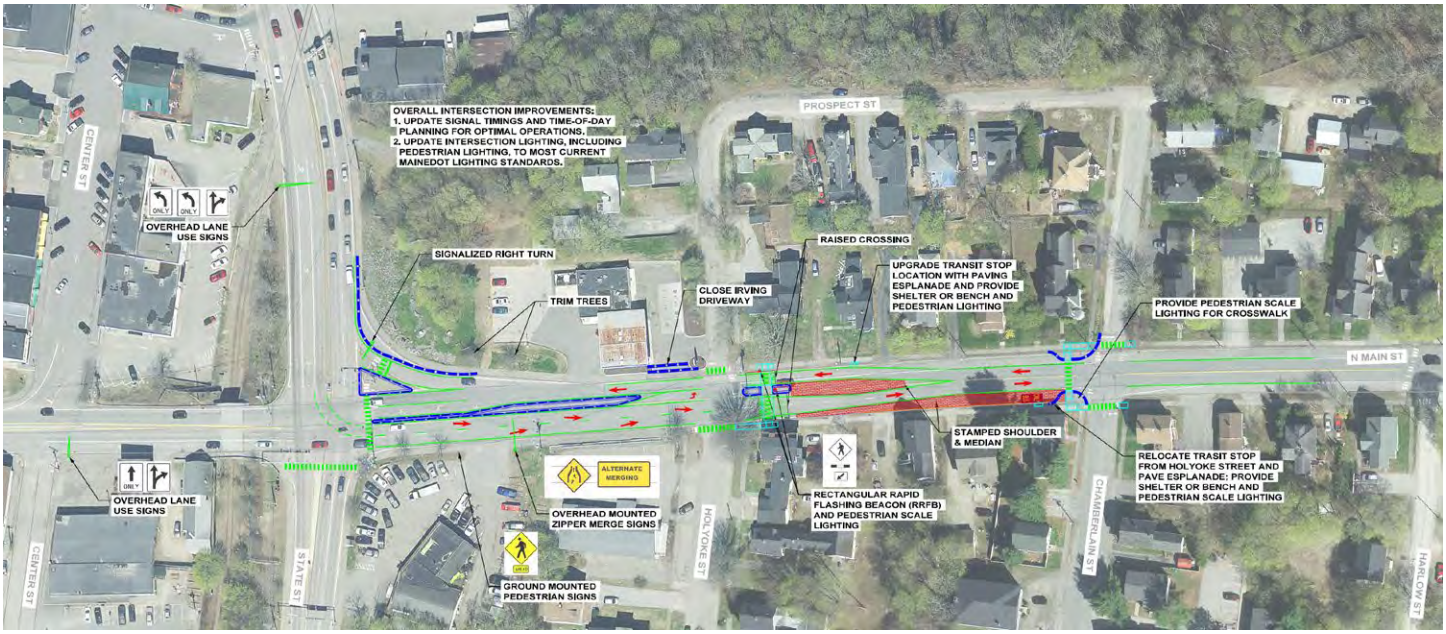
Alternative B



Focus Area 1: Alternative B (Medium cost / Medium term)
Key Components
State Street + North Main Street Intersection
» Signalized right turn with stop bars and signal arm from N. Main Street to State Street towards Bangor
» Added pedestrian signal across channelization lane
N. Main St. Corridor (State St. to Chamberlain St.)
» Zipper merge with overhead and ground mounted signs
» Crosswalk at Holyoke St. with RRFB, pedestrian scale lighting, bumpout on north side, and upgraded ramps
» Striped median and shoulder with delineator posts
» Relocated transit stop at Chamberlain from Holyoke for northbound stop with pedestrian scale lighting and upgraded crosswalk striping and ramps

Focus Area 1: Alternative B (Medium cost / Medium term)
Pros
» Maintains existing curb line
» Improves safety for double left turns through intersection
» Improves safety for drivers and pedestrians at right turn turning onto State St. towards Bangor
» Zipper lane slows traffic and formalizes merge
» Safer pedestrian crossing at Holyoke St.
» Eliminates lane entrapment on N. Main St. for right turn on Chamberlain
Cons
» There are still two lanes of traffic traveling uphill through the crosswalk at Holyoke Street (a “double-threat” crossing)
» Potential for car queues at new signalized channelization lane

Alternative C



Focus Area 1: Alternative C (High cost / Long term)
Key Components
State Street + North Main Street Intersection
» Striping in the intersection for the double left from State Street to North Maine
» Signalized right turn with stop bars and signal arm from N. Main St. to State St. towards Bangor
» Realigned right turn channelization lane and island to current geometric standards
N. Main St. Corridor (State St. to Chamberlain St.)
» Median Island on N. Main St. with a dedicated left turn lane before the crosswalk onto Prospect St.
» Zipper merge with overhead and ground mounted signs
» Two-stage raised crosswalk at Holyoke St. with RRFB, pedestrian scale lighting, and upgraded ramps
» Stamped shoulders past the crosswalk to reinforce single lane
» Relocated transit stop at Chamberlain from Holyoke for northbound stop with pedestrian scale lighting, bench or shelter and upgraded crosswalk striping and ramps

Focus Area 1: Alternative C (High cost / Long term)
Pros
» Maintains existing curb line
» Improves safety for double left turns through intersection
» Improves safety for drivers and pedestrians at right turn turning onto State St. towards Bangor
» Improves pedestrian crossing at Holyoke Street
» Eliminates lane entrapment on N. Main St. for right turn on Chamberlain
Cons
» Crosswalk is in a slightly different location than for the short-term solutions
» Additional drainage structures may be required for raised crosswalk
» Closing Irving driveway may require circulation changes

Proposed Alternative

Based on feedback from the Study Team, Alternative C was advanced because it represents the option that goes the furthest to address safety at the intersection and crosswalk and slows traffic speeds through this area. After receiving feedback from the public, some modifications were made to Alternative C:

- Park improvements at the northeastern corner of State Street and North Main Street were added.
- The alternative lane merge was adjusted to be complete before the crosswalk at Holyoke Street.
- Blank out LED signs indicating no right turn during active pedestrian phasing was added to the channelization lane from North Main Street to State Street.

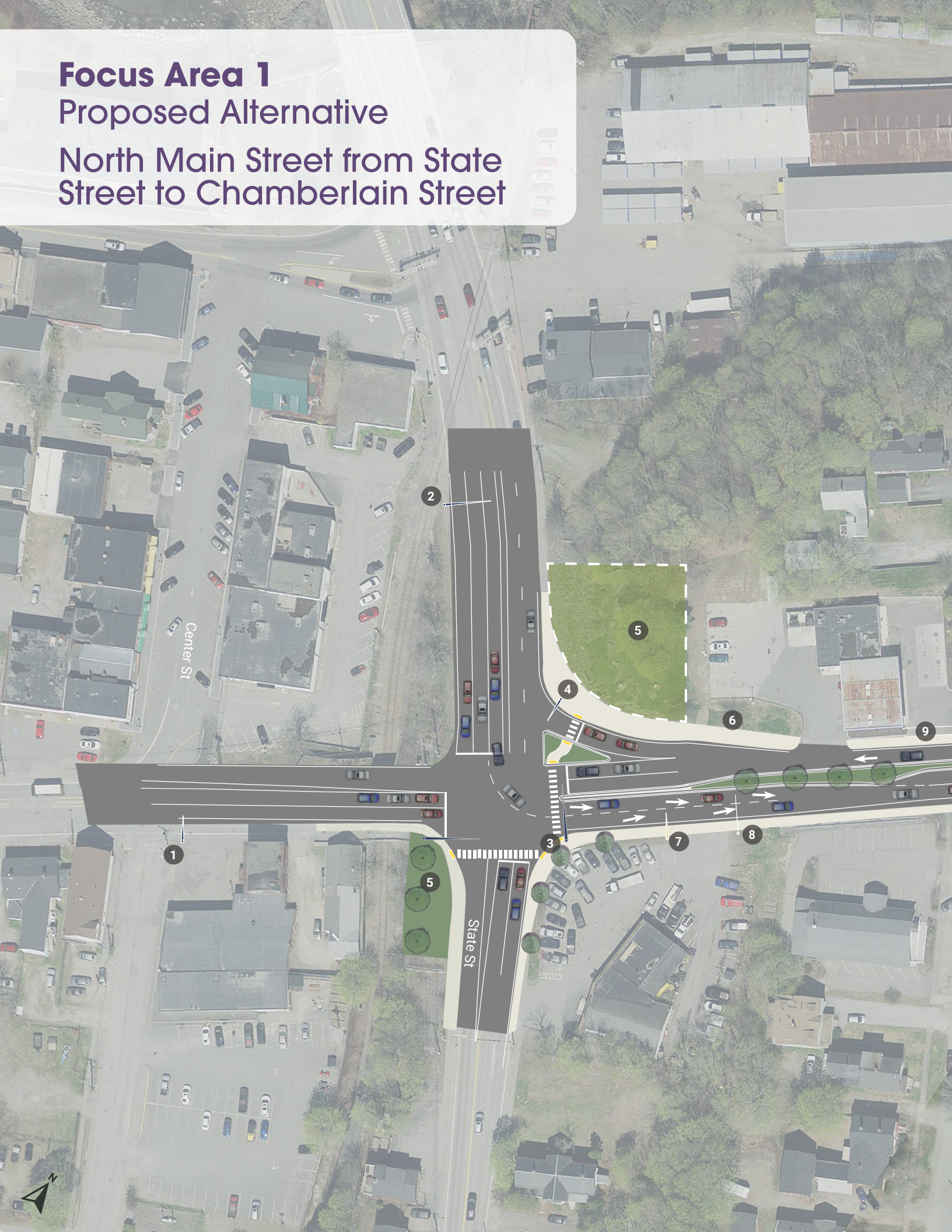
Proposed landscape improvements to the area include tree plantings in center median and along North Main Street as well as the addition of a sidewalk grass strip where feasible. Inclusion of large canopy trees provides seasonal interest and contributes to the overall streetscape aesthetic. It is also recommended that improvements to the parks located at the State Street intersection be made to create a more inviting and accessible experience for residents and visitors.

The estimated planning level cost for these improvements is $1,030,000. This cost estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in Appendix D.

North Main Street and Holyoke Street crosswalk with proposed improvements

Focus Area 1
Proposed Alternative

North Main Street from State Street to Chamberlain Street



Proposed Design Elements

1. Overhead mounted zipper merge approach sign 

2. Overhead lane use signs 

3. Pole mounted zipper merge signs for double left turns 

4. Signalized right turn with blank out LED signs to prohibit right turns on red during active pedestrian phasing 

5. Park improvements
6. Trimmed trees
7. Pole mounted pedestrian warning sign mounted to zipper merge sign structure 

8. Overhead mounted zipper merge signs 

9. Closed Irving driveway closest to Prospect Street
10. Raised crosswalk
11. Rectangular Rapid Flashing Beacon (RRFB) and pedestrian scale lighting 
12. Stamped shoulder and median
13. Upgraded transit stop location with paving esplanade and provide shelter or bench and pedestrian scale lighting
14. Relocated transit stop from Holyoke St with a shelter or bench and pedestrian scale lighting
15. Bump outs and pedestrian scale lighting at crosswalk

Overall Improvements for State St Intersection

1. Update signal timings and time-of-day planning for optimal operations
2. Update intersection lighting, including pedestrian lighting, to most current MaineDOT lighting standards
3. Lane extension lines

PLAN

50 0 50 100

Scale of Feet

Focus Area 2: Center Street Corridor and North Main Street Intersection

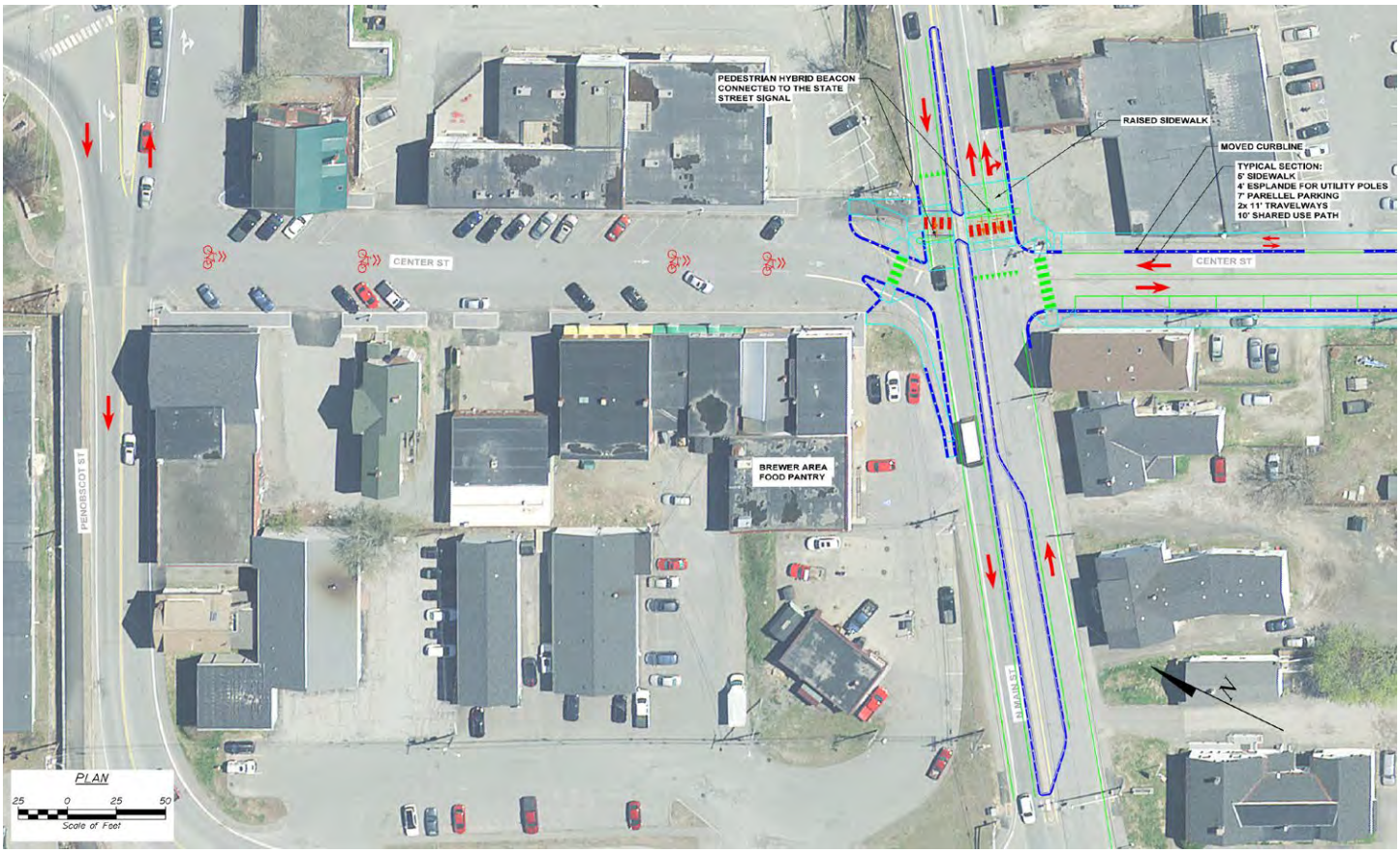
Center Street is an important connection in the city, linking the Historic Downtown and Riverwalk on one side of North Main Street to residential neighborhoods and the city's recreational facilities on the other side. Improving Center Street for all modes of travel was a priority for the Study Team, and this sentiment was echoed through the public input received. There is no marked crossing at North Main Street despite many reports of people crossing at this location anyway. Additionally, the northern section of Center Street through the downtown is one-way coming towards North Main Street, but cars are reported to frequently illegally turn right from North Main Street onto the one-way portion of Center Street. The southern portion of Center Street also has significant drainage problems and frequently floods. Stantec evaluated three sets of alternatives for this location, focused on reconstructing Center Street, providing a safe crossing at North Main Street, and connecting the Riverwalk to the recreational facilities at the end of Center Street with improved walking and biking facilities.

Alternative A

Focus Area 2: Alternative A (Low cost / Short term)
Key Components
Center St. and N. Main St. Intersection
» Adds crosswalk and curb ramps with pedestrian hybrid beacon coordinated with the State Street intersection traffic signal
Center St. Corridor (North)
» Sharrows in travel lane
Center St. Corridor (South)
» Advisory bike lanes painted on ground and ground mounted signage

Focus Area 2: Alternative A (Low cost / Short term)
Pros
» Formalizes bicycle usage on northern section of Center Street
» Provides a safe and formal pedestrian crossing at North Main Street and Center Street
Cons
» Bicycle sharrows on northern section of Center Street behind diagonal parking is not best practice

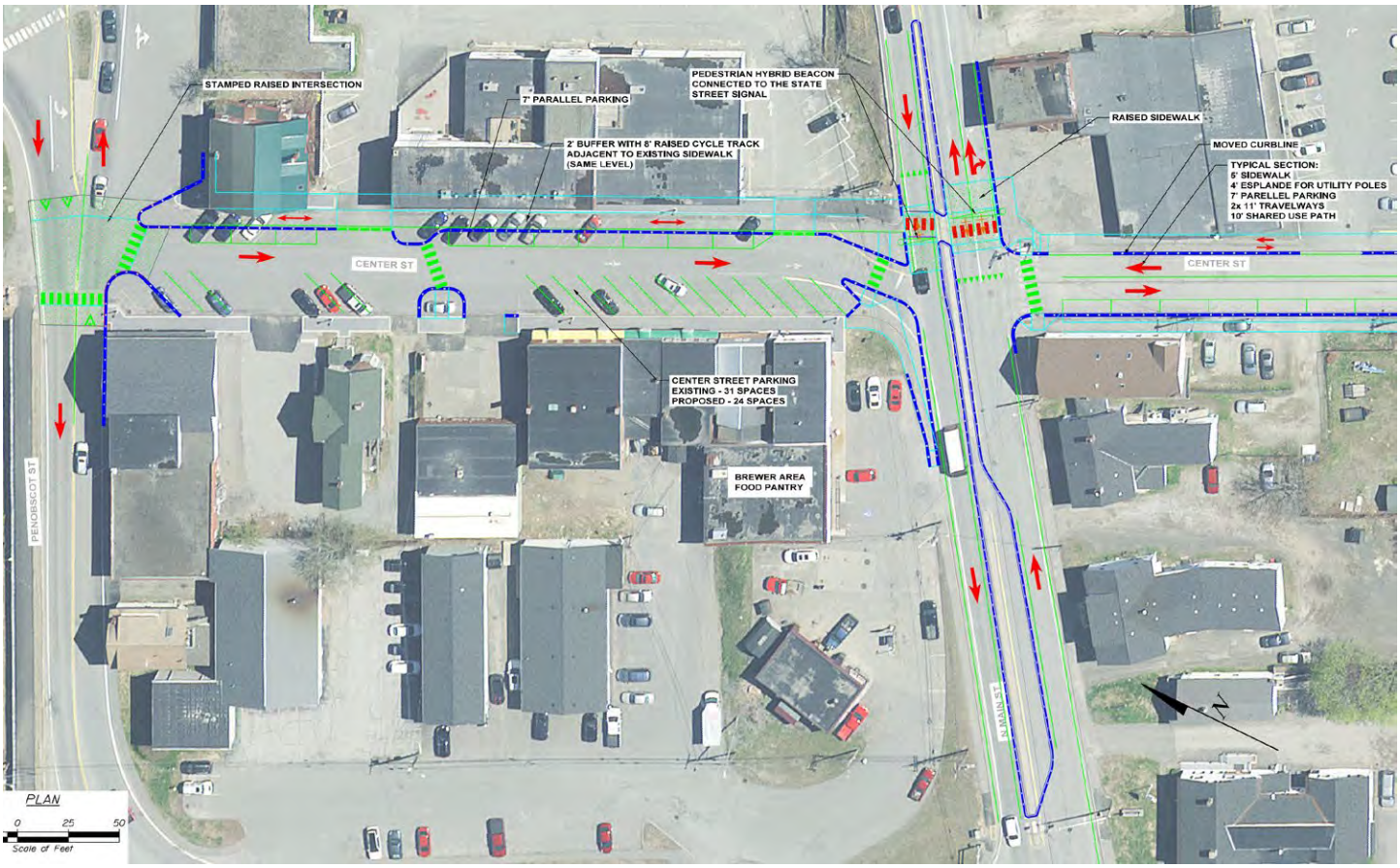
Alternative B



Focus Area 2: Alternative B (Medium cost / Medium term)
Key Components
Center St. and N. Main St. Intersection
» Adds two-phase raised crosswalk and curb ramps with pedestrian hybrid beacon coordinated with the State Street intersection traffic signal
Center St. Corridor (North)
» Sharrows in travel lane
» Improves access management at intersection of Center St. and North Main St.
Center St. Corridor (South)
» Raised 10' shared use path on northeast side of road

Focus Area 2: Alternative B (Medium cost / Medium term)
Pros
» Provides a safe and formal pedestrian crossing at Center St.
» Expands pedestrian space at intersection
» Improves bicycle safety and access along Center St
» Improves vehicular safety at intersection
Cons
» Moves existing curb line on Center St. southwesterly
» Closes curb cut to food pantry on North Main St.
» No separation between shared use path and roadway

Alternative C



Focus Area 2: Alternative C (High cost / Long term)
Key Components
Center St. and N. Main St. Intersection
» Adds two-phase raised crosswalk and curb ramps with pedestrian hybrid beacon coordinated with the State Street intersection traffic signal
Center St. Corridor (North)
» Raised intersection at Penobscot
» Midblock crossing
» 8ft raised 2-way bike lane on northeast side of road
» Parallel parking on northeast side of road
» Improves access management at intersection of Center St.
Center St. Corridor (South)
» Raised 10’ shared use path on northeast side of road

Focus Area 2: Alternative C (High cost / Long term)
Pros
» Provides a safe and formal pedestrian crossing at Center St.
» Provides a safe and formal crossing of Penobscot to Riverway
» Expands pedestrian space at intersections
» Improves bicycle safety and access along Center St.
» Improves vehicular safety at intersections
Cons
» Decrease of approximately 7 parking spaces
» Closes curb cut to food pantry on N. Main St.
» Moves existing curb line on Center St. southwesterly
» No separation between shared use path and roadway

Proposed Alternative: Center Street from Penobscot Street to North Main Street and North Main Street Improvements

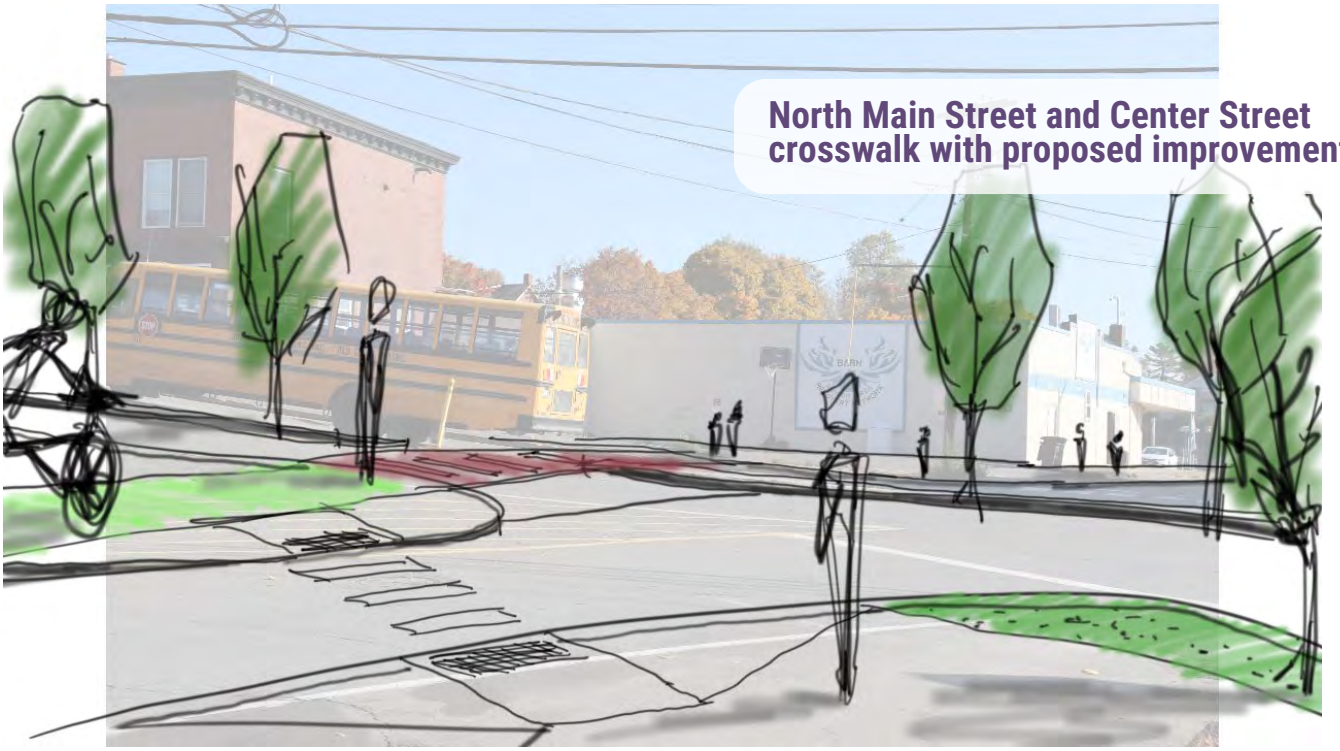
Based on feedback from the Study Team, Alternative C was selected to be moved forward because it represented the option that goes the furthest to address safety at the intersection of Center Street and North Main Street. This option also provides the best connectivity between the Riverwalk and the recreational facilities. After receiving feedback from the Study Team and the public, some improvements were made to Alternative C before it was advanced as the proposed alternative.

- Diagonal parking was replaced with compliant parallel parking on the southwestern side of Center Street to fit the 10' shared use path within the cross-section.
- Additional parking was added on Penobscot Street to offset the reduction on Center Street.
- The intersection with the one-way portion of Center Street and North Main Street was adjusted to improve site lines.
- A pocket park was added to the northwestern corner of the intersection.
- A chicane was added to North Main Street to improve the turning radius for northbound vehicles turning right onto Center Street south.
- The through and left lane on North Main Street east of Center Street was adjusted to begin after the proposed crosswalk to reduce the crossing distance and the number of lanes that need to be crossed.
- The geometry of the raised intersection and bumpouts at Center Street and Penobscot Street was adjusted to make snow plowing easier.
- To prevent conflicts between bicyclists and pedestrians entering and exiting businesses, the shared use path has a dedicated pedestrian area abutting the storefronts.

The steep slope on North Main Street between Center Street and State Street to allow for the railroad to pass below makes providing a safe crossing for walkers and bikers at Center Street a challenge. Given the limited visibility, the Study Team determined that it was best to fully stop traffic on North Main Street by installing a Pedestrian Hybrid Beacon (PHB) at the proposed crosswalk. The Pedestrian Hybrid Beacon will provide a red light to both directions of traffic to allow for the safe crossings of pedestrians. The PHB signal will be interconnected and coordinated with the State Street traffic signal so the walk signal will only be active when southbound traffic on North Main Street is stopped at the State Street intersection (southbound State Street traffic is prohibited from turning right on red and left turns from State street northbound onto North Main Street are also prohibited). This will ensure that traffic is not coming down the hill towards Center Street when pedestrians are crossing. The PHB will also be coordinated with the signal at Betton Street / Parker Street. As traffic patterns evolve, the PHB timings and coordination can be updated as appropriate.

The continuation of proposed tree planting in the center median of North Main Street is integral to the overall streetscape aesthetic and contributes to traffic calming. At the intersection of North Main Street and Center Street, a newly created pocket park, bench seating and bike racks are proposed to allow people to pause and rest as needed while visiting local shops or stroll to the Riverwalk nearby.

Street trees are planted on the southwest side of Center Street to create a pleasant pedestrian



North Main Street and Center Street crosswalk with proposed improvements

walking experience. A raised intersection at Center Street and Penobscot Street prioritizes pedestrians crossing and connecting with the Riverwalk.

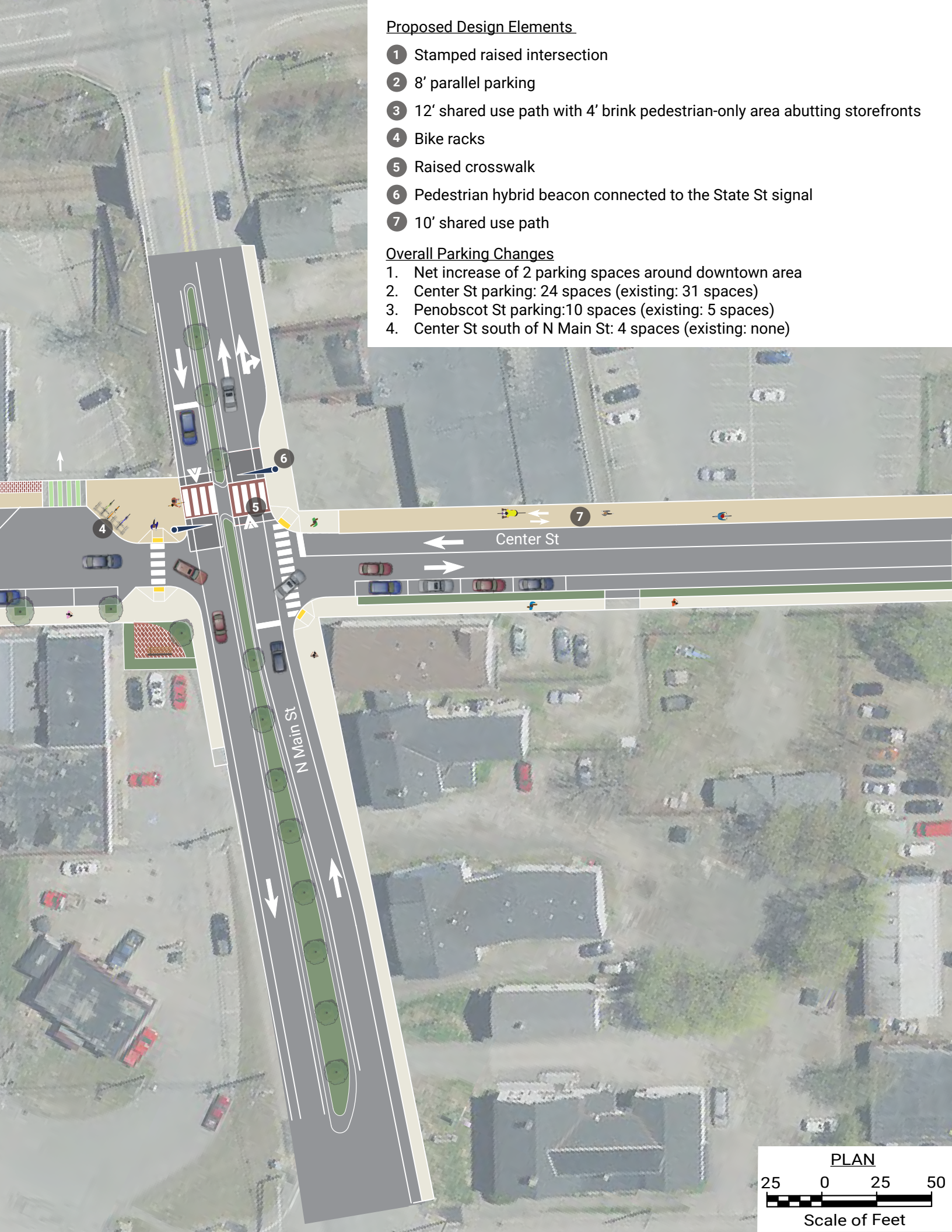
The estimated planning level costs for the recommendations on Center Street from Penobscot Street to North Main Street and the North Main Street corridor improvements is $1,330,000. This estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in **Appendix D**.

Parking Recommendations

The proposed alternative doesn't significantly impact the total number of parking spaces in the area, and Stantec's Shared Parking Demand Model shows that there is plenty of parking to support existing uses and future development. However, the Study Team and the public still had some concerns about front-door parking along the northern section of Center Street—in particular based on the fact that the proposed alternative reduces the number of spaces in this area and the fact that most of the off-street parking is private. In order to help ensure a healthy supply of parking available to the public with regular turnover in front of key destinations, Brewer should consider the following parking recommendations in this area:

- **Implement time limited parking on Center Street**
  - Restrict all on-street parking to 2 hours to encourage employees and residents to park elsewhere.
  - Implement a process for businesses to petition for 15-minute parking outside of a high turnover establishment, such as a coffee shop or dance studio.
- **Enact shared parking agreements to allow for public parking in private lots when there is excess supply available.**
  - Shared parking agreements can be time or location limited and the terms of the agreement often include in-kind maintenance services from the city in-lieu of a financial arrangement, such as snow plowing, cleaning, or re-paving.

Focus Area 2
Proposed Alternative
Center Street Corridor and North Main Street Intersection



Proposed Design Elements

1. Stamped raised intersection
2. 8’ parallel parking
3. 12‘ shared use path with 4’ brink pedestrian-only area abutting storefronts
4. Bike racks
5. Raised crosswalk
6. Pedestrian hybrid beacon connected to the State St signal
7. 10’ shared use path

Overall Parking Changes

1. Net increase of 2 parking spaces around downtown area
2. Center St parking: 24 spaces (existing: 31 spaces)
3. Penobscot St parking:10 spaces (existing: 5 spaces)
4. Center St south of N Main St: 4 spaces (existing: none)

North Main Street and Center Street
- Existing Conditions

North Main Street and Center Street
- Proposed Conditions Rendering


BARN
BANGOR AREA
RECOVERY NETWORK
261

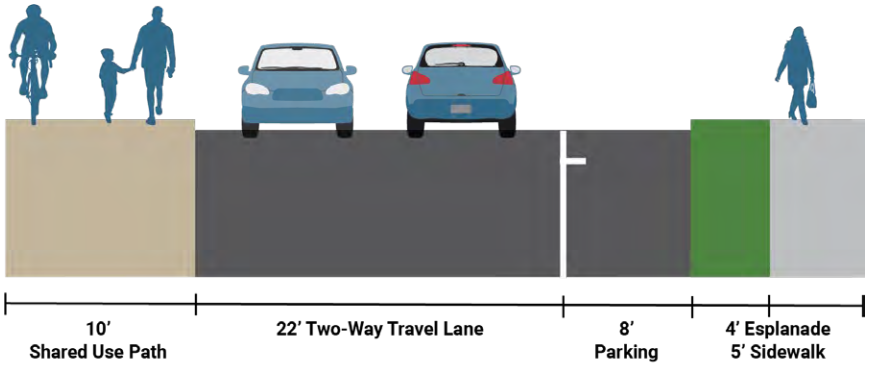

STOP
ONE WAY
BARN
BANGOR AREA
RECOVERY NETWORK
261

Proposed Alternative: Center Street Corridor South of North Main Street

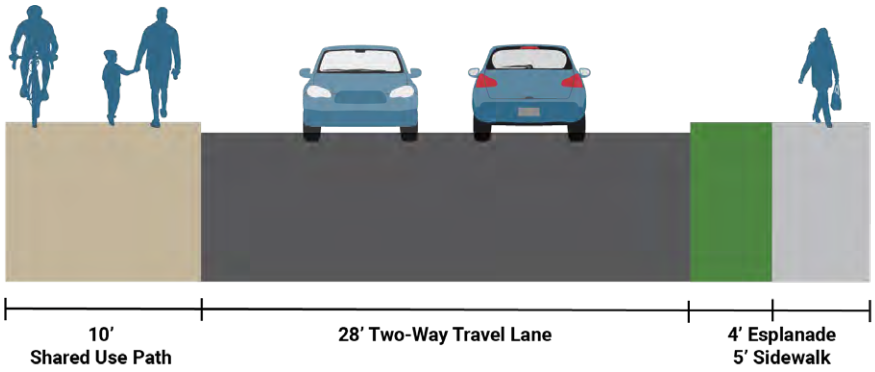
The preferred alternative for this Focus Area recommends a 10’ shared use path down the northeastern side of the road the entirety of Center Street to improve multimodal connectivity between the Riverwalk and the Brewer Recreational Facilities. South of North Main Street, Center Street is a low-volume residential road of variable width. To accommodate this, two typical cross sections are proposed for this section of Center Street. Given the condition of Center Street south of North Main Street, the proposed alternative also includes rebuilding the roadway.

The estimated planning level costs for the recommendations on Center Street from North Main Street to its southern end of the street is $3,050,000.This estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in **Appendix D**.

Center Street Proposed Cross Section - North Main Street to Railroad Tracks (looking southeast)



Center Street Proposed Cross Section - South of Railroad Tracks (looking southeast)



Southern portion of Center Street with proposed Shared Use Path

Focus Area 3: Wilson Street Corridor and North Main Street / South Main Street Intersection

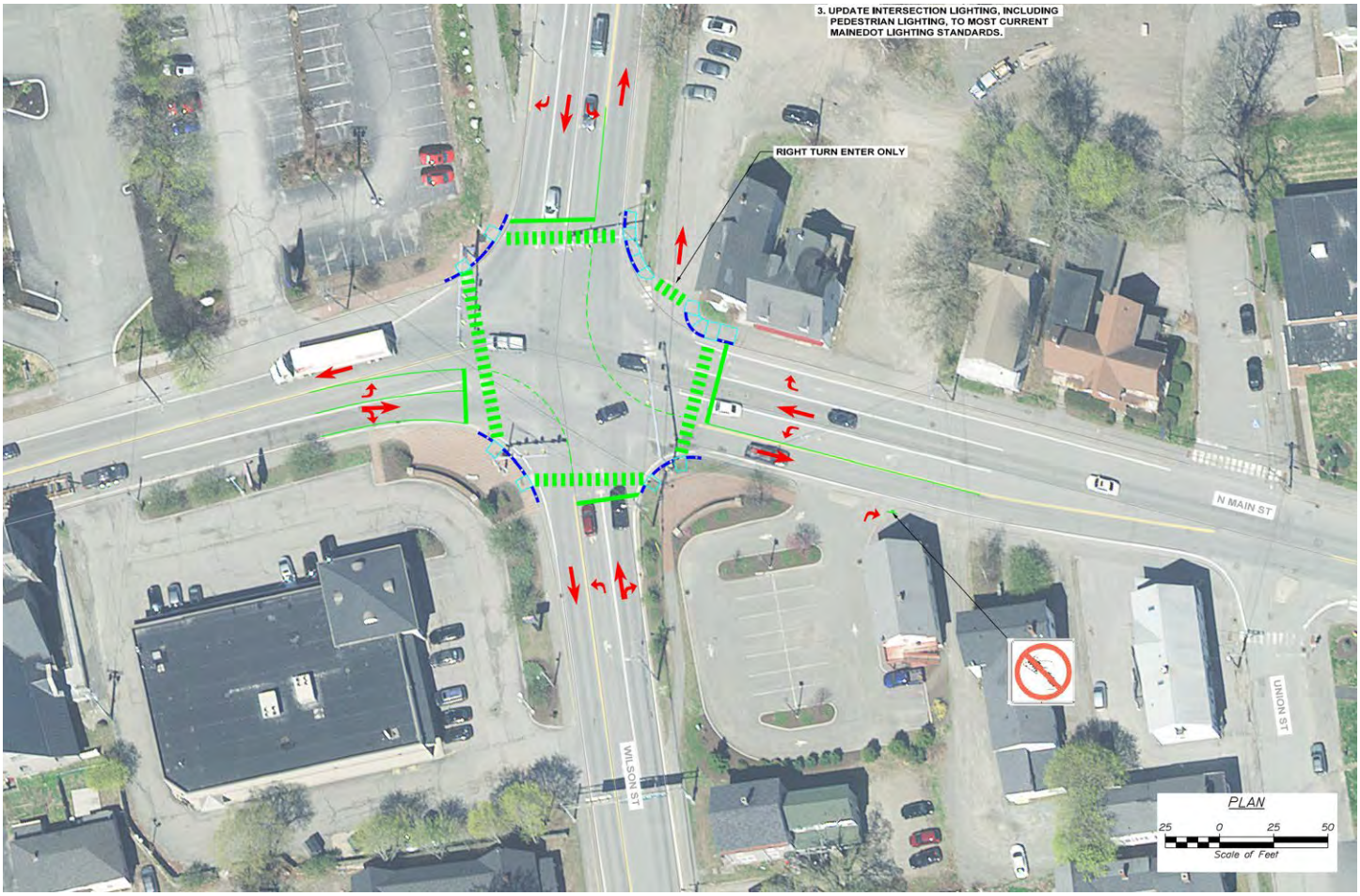
Wilson Street and North Main Street / South Main Street Intersection

The signalized intersection at Wilson Street and North Main Street / South Main Street is a High Crash Location. This intersection supports a lot of turning and through traffic in all directions. The geometry of the intersection makes it particularly challenging because none of legs of the intersection meet at right angles.

Although there is ample sidewalk width for pedestrians, lighting is lacking, crosswalks are long and traffic feels like it is moving quickly. There is also a connection to the Riverwalk parallel to Wilson Street in the northwestern corner of the intersection, but crossing the intersection from any direction on a bicycle does not feel comfortable for an average rider.

Stantec evaluated two alternatives for this intersection, focused on improving the intersection's alignment, reducing crosswalk lengths, and making the area more accessible for bicycles.

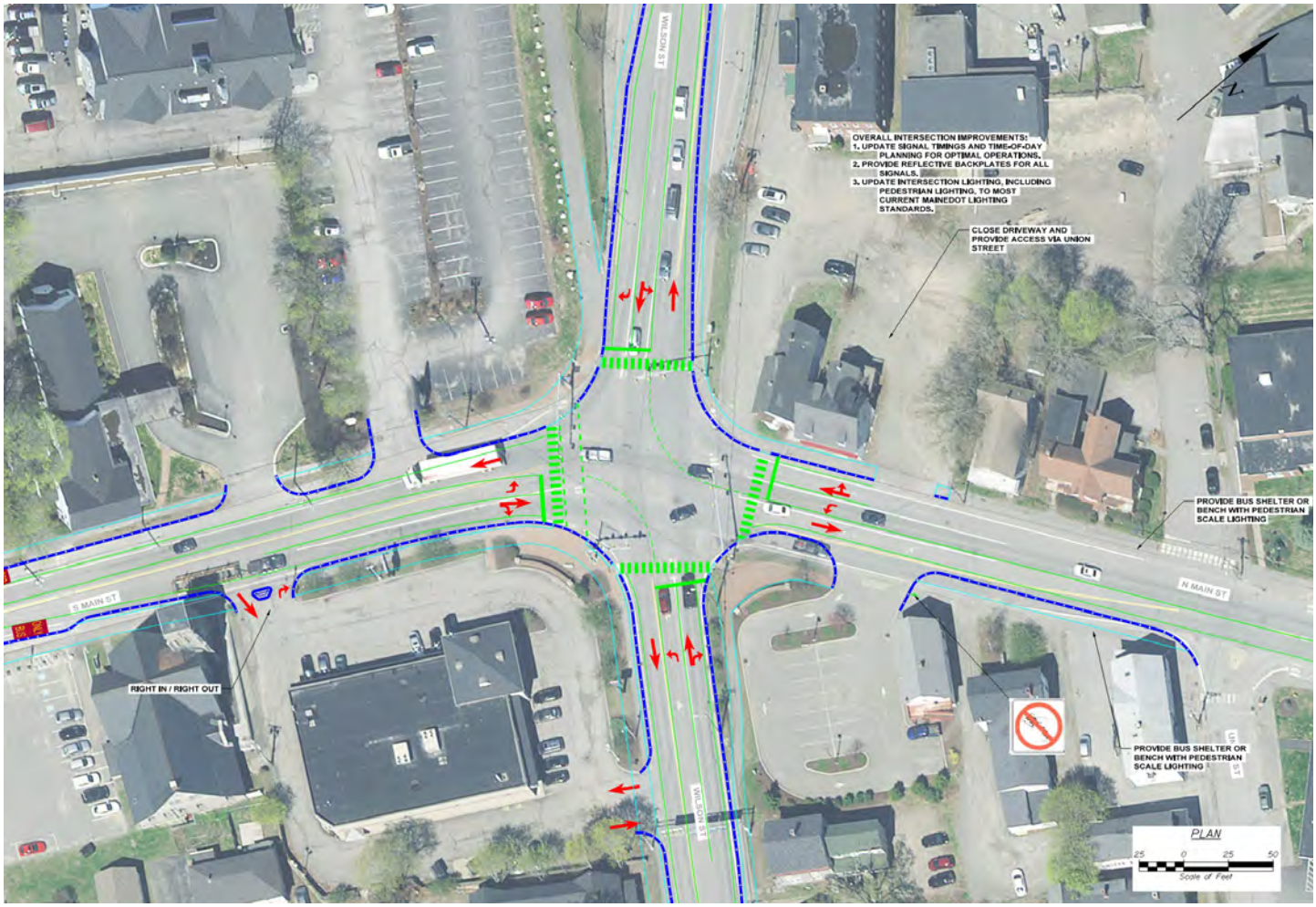
Intersection Alternative A



Focus Area 3: Intersection Alternative A (Low cost / Short term)
Key Components
Wilson St. & N. Main St./S. Main St. Intersection
» Restripes crosswalks and make ramp improvements
» Angle lane markings to better align vehicles before intersection
» Adds turn guidelines within the intersection box
» Allows right turn only into driveway
» Eliminates right turn on red for all approaches with the installation of static signs
» Improves signal timing for pedestrian crossings

Focus Area 3: Intersection Alternative A (Low cost / Short term)
Pros
» Maintains existing curb line
» Lane guidelines improve safety
» Better differentiation between driveway and ramps
» Improves access management at municipal parking lot
Cons
» Requires private property agreement with abutters for driveway
» Minimal improvements for bikers and pedestrians

Intersection Alternative B



Focus Area 3: Intersection Alternative B (High cost / Long term)
Key Components
Wilson St. & N. Main St./S. Main St. Intersection
» Pushes back crosswalks and curb ramps
» Closes driveway on N. Main St. by intersection and redirects traffic to Union St.
» Access management improvements for Tiller & Rye property
» Eliminates right turn on red for all approaches with the installation of static signs and blank-out signs during active bike/pedestrian crossings
» Moves curb lines out in front of High Tide
» Improves signal timing

Focus Area 3: Intersection Alternative B (High cost / Long term)
Pros
» Maintains existing curb lines
» Lane guidelines and restriping improves safety
» Better differentiation between driveway and ramps
» Improves access management to properties near the intersection
» Shorter pedestrian crossings improve safety
Cons
» Requires private property agreement with abutters for driveway
» Access impacts to abutting businesses

Proposed Intersection Alternative

Based on feedback from the Study Team, Intersection Alternative B was selected to be moved forward because it represented the option that goes the furthest to address safety for all modes. This option also provides the best connectivity between the Riverwalk and the residential neighborhoods south of North Main Street and South Main Street. After receiving feedback from the Study Team and the public, some improvements were made to Alternative B before it was advanced to the proposed alternative.

- A bicycle and pedestrian crossing was added to the western leg of the intersection.
- The portion of Wilson Street next to the Riverwalk extension was reclaimed as public green space.
- Optimal lane assignments and traffic signal timing planning will be evaluated and finalized upon completion of I-395 Extension and review of traffic flows throughout the city.

The proposed improvements of using different surface treatments at the intersection helps convey to approaching pedestrians and bicyclists that sidewalk space must be shared to safely approach the street crossing. Where feasible, sidewalk grass strip and tree plantings are proposed.

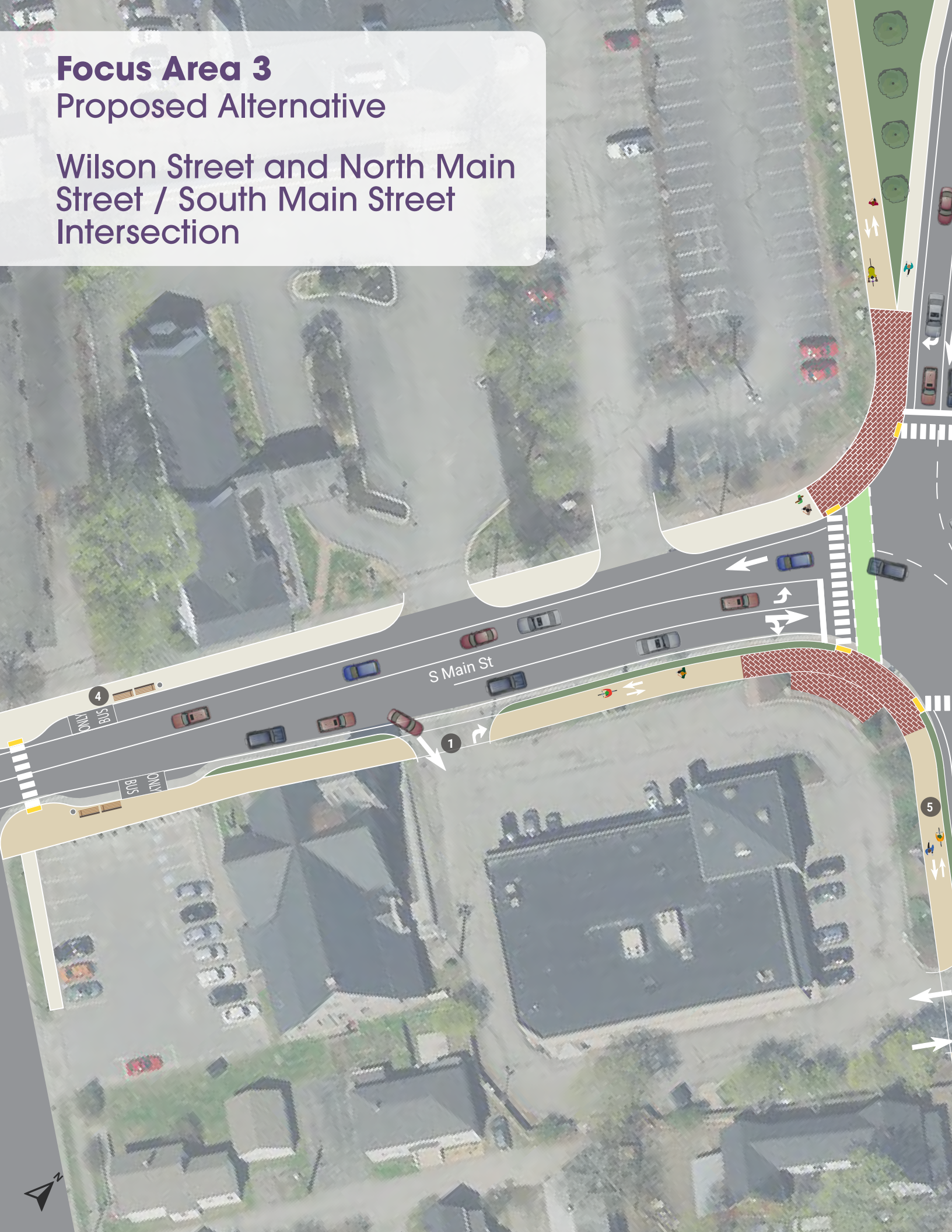
The proposed alternative recommends eliminating right turn on red with static signs, but blank-out signs prohibiting right turns during active pedestrian and bicycle crossings can also be installed on the signal structures further improve safety for bikers and pedestrians using the crossing.

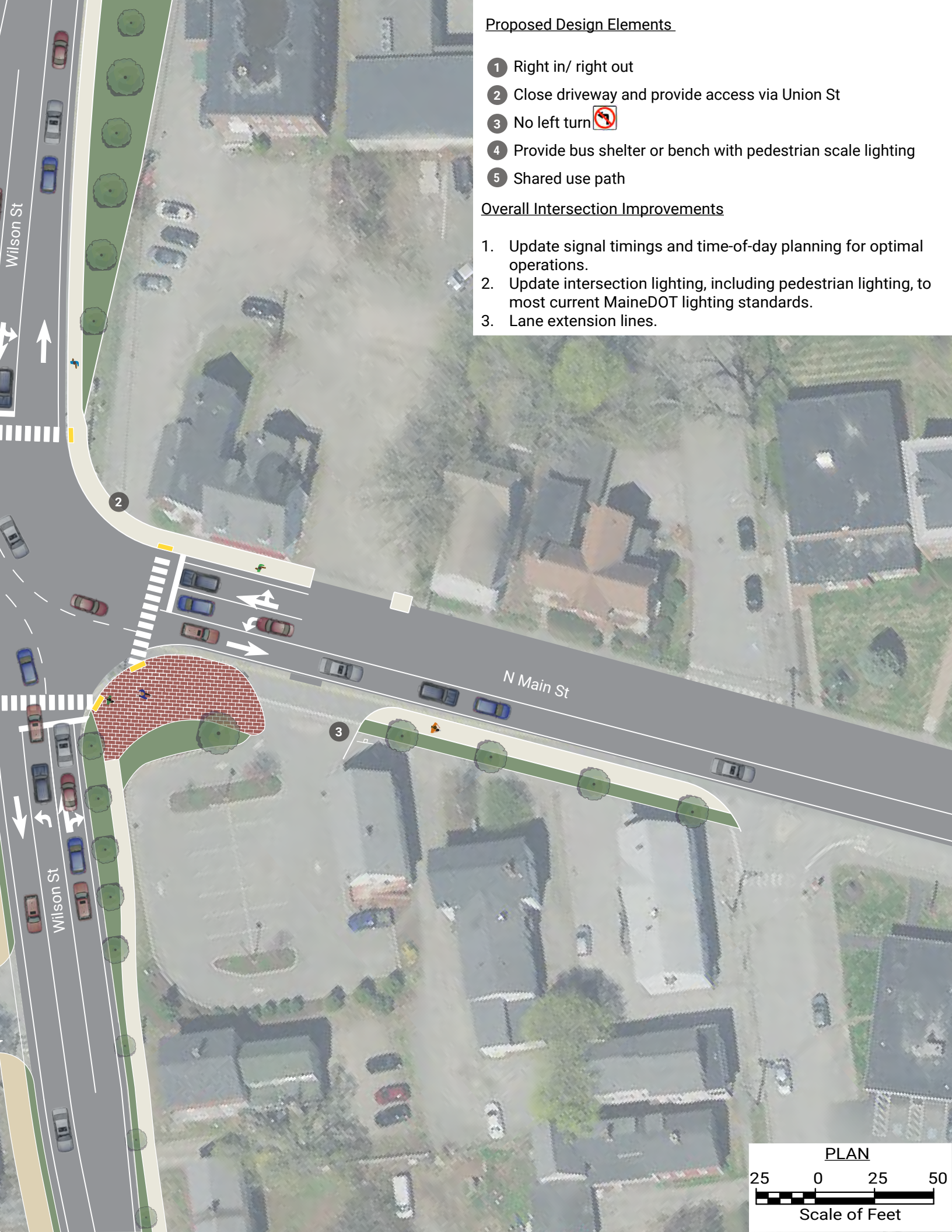
The estimated planning level cost for these improvements is $2,060,000. This cost estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in Appendix D.

North Main Street and Wilson Street crosswalk with proposed improvements

Focus Area 3
Proposed Alternative

Wilson Street and North Main Street / South Main Street Intersection





Proposed Design Elements

1. Right in/ right out
2. Close driveway and provide access via Union St
3. No left turn
4. Provide bus shelter or bench with pedestrian scale lighting
5. Shared use path

Overall Intersection Improvements

1. Update signal timings and time-of-day planning for optimal operations.
2. Update intersection lighting, including pedestrian lighting, to most current MaineDOT lighting standards.
3. Lane extension lines.

PLAN

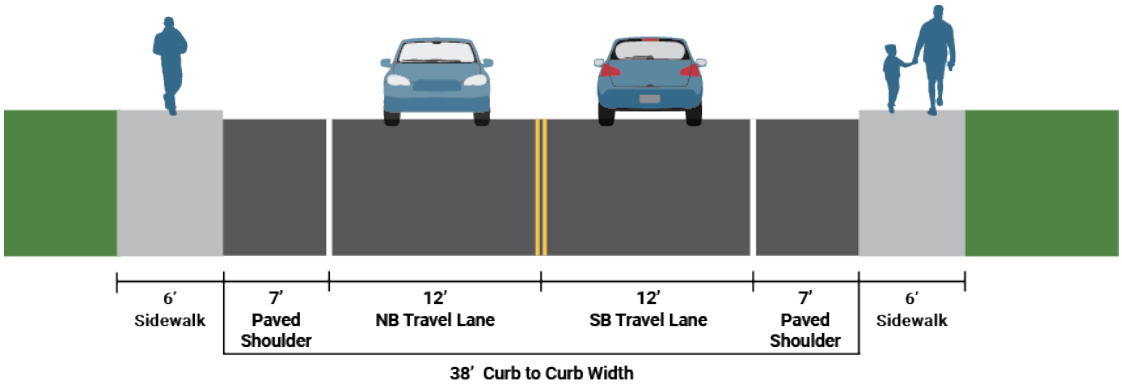
25 0 25 50

Scale of Feet

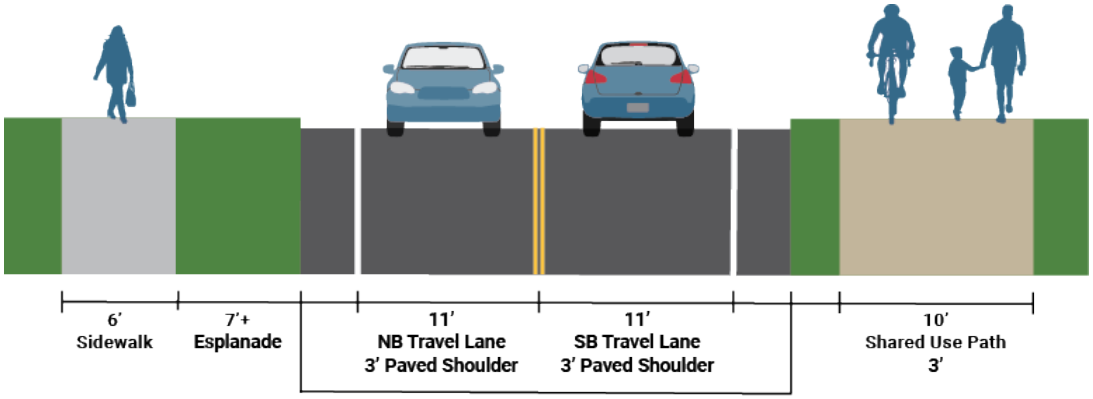
Wilson Street Corridor

The Wilson Street Corridor between North Main Street / South Main Street and State Street is a busy corridor and also an important connection to the Brewer Recreational Facilities and a potential future rail trail. Currently, the sidewalk in this area is not compliant with ADA and PROWAG standards, and it is obstructed by utility poles. To address these considerations, the Stantec Team developed two alternative potential cross sections, focused on narrowing the roadway and improving conditions for pedestrians and bicyclists.

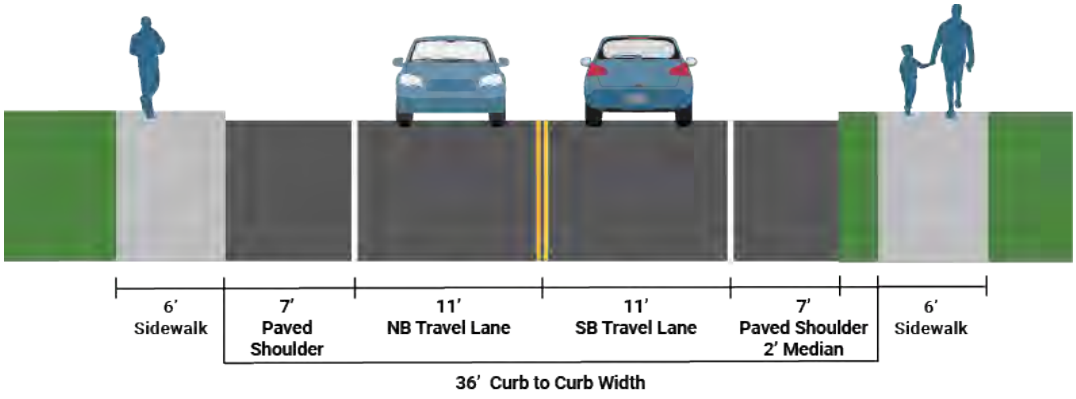
Existing Conditions (looking south)



Corridor Alternative A (looking south)



Corridor Alternative B (looking south)



Proposed Corridor Alternative

The Study Team agreed that Alternative A with the shared use path was the best choice for the portion of the corridor between the North Main Street / South Main Street intersection to the railroad corridor where there are future plans to convert the abandoned rail corridor to a trail. This would allow for a continuous off-road bicycle and pedestrian connections to the Riverwalk. South of the Railroad slopes are steeper and there would be impacts to existing retaining walls and foundations that make continuing the shared use path infeasible, so the Study Team agreed to advance Alternative B for the remainder of the corridor. The Study Team and the public also identified the existing crosswalk at Summer Street as a challenging location to cross, so the corridor recommendation includes adding a center island to allow for a two-stage crossing at this location.

The estimated planning level cost for the Wilson Street Corridor from the North Main Street / South Main Street Intersection to State Street is $3,340,000. This estimate assumes a 30% contingency and construction in 2028. The full cost estimate breakdown can be found in Appendix D.

Northern portion of Wilson Street with proposed Shared Use Path

Focus Area 3
Proposed Alternative

Wilson Street Corridor


Wilson St
PLAN
25 0 25 50
Scale of Feet

Northern portion of the Wilson Street Corridor - Existing Conditions


SPEED
LIMIT
25

Northern portion of the Wilson Street Corridor
- Proposed Conditions Rendering

Study Area-Wide Recommendations

Over the course of this study, it became clear to the Study Team, that the Focus Areas required the most attention and held the most opportunity for transformational change in the area. However, several observations were noted across the Study Area, and the following general recommendations are recommended for the city to consider.

- Increase pedestrian amenities
  - Complete the sidewalk network
  - Add pedestrian-scale lighting
  - Add ADA compliant curb ramps and crosswalks
  - Consider bumpouts and center medians for crossings where appropriate
- Add transit amenities at bus stops
  - Consider adding shelters, benches and lighting where appropriate
- Improve landscaping
  - Plant street trees in esplanades and medians where possible
  - Enhance existing parks and pocket parks
  - Install raingardens and bioswales where appropriate
- Implement traffic calming measures where appropriate
  - Install RRFB's and raised crossings and/or raised intersections
  - Narrow travel lane widths
- Improve access management
  - Combine driveways where feasible
  - Eliminate multiple curb cuts for a single property
  - Narrow wide drives
  - Encourage connections between abutting parcels

Implementation Plan

Priority of Focus Areas:

The Stantec Team recommends implementing the Focus Areas as three separate projects in the following sequence:

1. **Focus Area 2:** Center Street Corridor and North Main Street Intersection
2. **Focus Area 1:** North Main Street from State Street to Chamberlain Street
3. **Focus Area 3:** Wilson Street Corridor and North Main Street / South Main Street Intersection

This prioritization is based on the goals of MaineDOT's Village Partnership Initiative program, the Study's Purpose and Need, and feedback received from the Study Team and the public throughout the planning process. The VPI program strives to create economic growth and opportunity by supporting transformative investments in Maine village and downtown centers and improving pedestrian, bicycle, and vehicular safety. The Purpose and Need statement for this study focused on improving safety and accessibility for all users, expanding active transportation, and supporting future growth and economic development.

Since Center Street includes Brewer's Historic Downtown, Stantec recommends prioritizing implementation here first. The North Main Street improvements between State Street and Chamberlain Street are the second priority because of their proximity to the downtown and the focus on pedestrian safety at the State Street intersection and the Holyoke Street crosswalk. The Wilson Street corridor and intersection is third since it also addresses safety and active transportation connections, but is more peripheral to the downtown.

Construction Considerations

Each of these projects involves State Roads – State Route 1A (Wilson Street), State Route 9 (North Main Street), and State Route 15B (North Main Street) – and will need coordination with MaineDOT. In particular, the projects will need to go through the Traffic, Analysis, and Movement Evaluation (TAME) process. This input along with the city's review will identify acceptable traffic control restrictions during construction including times of day work, lane/shoulder closures, allowable alternating two-way traffic, traffic control at the signalized intersections, and sidewalk detours.

Implementation Timeline

The design process from conducting topographic, utility and line and grade surveys through advertising a contract is expected to take a minimum of 24 months with the length of the ROW process being a critical path item on the timeline. Both the Wilson Street and Center Street projects are anticipated to be completed in two construction seasons; whereas the North Main Street project could be completed in one construction season.

Design

Design Services Tasks	Year 1												Year 2											
	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Preliminary Design	■	■	■	■	■	■																		
Final Design							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ROW Process							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Utility Coordination		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Environmental Permits					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Maintenance of Traffic Assessment					■	■											■	■	■	■	■			

Construction

Focus Area 2: Center Street Corridor and North Main Street Intersection
Focus Area 3: Wilson Street Corridor and North Main Street / South Main Street Intersection

Design Services Tasks	Year 1												Year 2											
	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December
Project Advertisement & Award	■	■																						
Mobilization			■																					
Drainage, Utilities, Foundations				■	■	■	■																	
Excavation					■	■	■																	
Gravel & Base Pavements							■	■	■	■														
Curbing							■	■	■	■														
Signals, Signing, and Landscaping																	■	■	■	■				
Surface Pavements & Striping																		■	■	■	■			

Construction

Focus Area 1: North Main Street from State Street to Chamberlain Street

Design Services Tasks	Year 1											
	January	February	March	April	May	June	July	August	September	October	November	December
Project Advertisement & Award	■	■										
Mobilization			■									
Drainage, Utilities, Foundations				■	■	■						
Excavation					■	■						
Gravel & Base Pavements						■	■	■				
Curbing						■	■	■				
Signals, Signing, and Landscaping								■	■	■		
Surface Pavements & Striping									■	■		


UNION