# Transit Hub Alternatives Analysis for the City of Bangor

## Final Report Submitted to the City of Bangor

April 26, 2014

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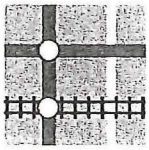

with Fey, Spofford & Thorndike
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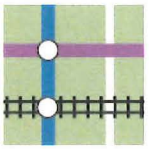

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**TRANSIT HUB ALTERNATIVES ANALYSIS**

**FOR THE CITY OF BANGOR**

**APRIL 2014**

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# Chapter 1: Introduction and Executive Summary

## 1.1 Introduction

Between May 2013 and February 2014 Tom Crikelair Associates developed a *Transit Hub Alternatives Analysis* for the City of Bangor. This work was carried out for the city with Federal Transit Administration funding provided by the Maine Department of Transportation. Bangor's Government Operations Committee provided guidance and oversight for this planning effort. The engineering firm Fay, Spofford & Thorndike provided facility design concepts and cost estimates. Coplon Associates developed a conceptual landscape design for the Pickering Square / Water Street alternative.

This report presents the findings and recommendations of the study. It includes nine chapters:

**Chapter 1** **Introduction and Executive Summary**
Chapter one presents a summary of the project report, including key findings and recommendations.

**Chapter 2** **Study Purpose**
Chapter two addresses the context in which this *Transit Hub Alternatives Analysis* was carried out. It describes the issues and problems that led the City of Bangor to undertake this study, and it formulates goals that helped guide the planning effort. It identifies a preferred future for downtown Bangor, including Pickering Square, and it describes a preferred future for the Community Connector transit service.

**Chapter 3** **Community Connector Ridership and Transfer Activity**
Chapter three examines recent Community Connector ridership patterns, with a special focus on transfer activity at Pickering Square. It includes the results of a June 2013 transfer study that analyzes how current riders use Community Connector buses to complete trips that involve more than one route. It highlights ridership findings that are particularly relevant for transit hub planning.

**Chapter 4** **Public Comments and Suggestions**
Chapter four describes efforts to obtain ideas and suggestions for the future of the Community Connector and Pickering Square from community members.

**Chapter 5** **Overview of Transit Design Concepts**
Chapter five provides a brief overview of service design concepts for small urban transit systems. It explains why hub-and-spoke systems are usually the preferred design strategy for small cities like Bangor. It goes on to describe variations and alternatives, and considers whether these design concepts might have some relevance for Bangor's regional transit system.

**Chapter 6:** **Preliminary Review of Candidate Sites**
Chapter six considers sixteen alternatives for a future Bangor transit hub. It addresses candidate locations for both primary and secondary transfer hubs. The various sites are assessed in terms of their ability to meet sixteen preliminary criteria and goals. This initial screening effort is designed to yield a short list of preferred sites that will be analyzed in greater detail in Chapter 7.

**Chapter 7:** **Detailed Analysis of Preferred Alternatives**
Chapter seven provides detailed analysis of five alternative transit hub design strategies. The chapter describes how each transfer hub concept would impact Community Connector bus routes, bus stops, transfers, schedules, and service frequency. It also provides a preliminary estimate of transit operating costs.

**Chapter 8:** **Preliminary Design Concepts**
Chapter eight presents preliminary design concepts for the alternative transit hub strategies addressed in chapter seven. It includes three conceptual sketches for Pickering Square / Water Street, three for the Airport Mall, one for an intercity bus terminal near the Airport, and one for Summer Street.

**Chapter 9:** **Recommendations**
Chapter nine presents the consulting team's recommendations for the future of Pickering Square and the Community Connector transit system. It summarizes the strengths and weaknesses of six transit hub alternatives, and it compares the anticipated construction costs associated with each approach. It presents a conceptual landscape plan for Pickering Square, along with a draft Community Connector route map that takes advantage of a proposed transfer hub at the Airport Mall.

## 1.2 Recommendations

The consultants developed three sets of recommendations for Bangor and its Community Connector partners. Part one addresses Pickering Square and bus stops in downtown Bangor. Part two recommends creation of a new outlying hub at the Airport Mall. Part three suggests changes to six Community Connector bus routes.

*Downtown Bangor and Pickering Square*

The consultants were unable to locate an available, affordable, and viable alternative to continued use of Pickering Square as a downtown Community Connector transit hub. They recommend that the city choose between two Pickering Square alternatives: (1) design and construct a new turnout and passenger waiting island parallel to Water Street, or (2) continue to use both of the existing bus lanes in front of the parking garage for Community Connector buses.

The consultants consider the Water Street option to be preferable, because it removes bus stop activity from important pedestrian pathways and because it allows for a village green-style redesign of the public square. But they also recognize that the Water Street option will result in transfer delays for Hampden and Brewer bus riders, and that buses on Water Street may be perceived by some Key Bank Plaza tenants as an obstacle between their building and Pickering Square.

With either approach, the city should continue its efforts to obtain federal funding to purchase quieter, alternative-fuel buses. Also, if buses remain where they are, the city should hire a landscape architect to design improved pathways through Pickering Square.

The city may want to pursue a third Pickering Square alternative that came to light at the end of the planning process. At the December 16 meeting of the Government Operations Committee, a City Councilor asked if a transit hub could fit on the site next to the parking garage that is currently occupied by a Key Bank drive through facility. The consultants did not consider this location earlier because it is occupied by a private business, and because there has been no indication that it might be made available for use by the city.

The consultants did not contact Key Bank to inquire about this property. They did, however, prepare a preliminary sketch showing that the site could be reconfigured to accommodate up to five transit buses. The city may be able to help Key Bank find a better downtown site for a drive through facility. Moving the transit hub to Broad Street would preserve transit access in the downtown center, while moving buses away from views and pathways associated with Pickering Square.

The consultants recommend that the City of Bangor apply for Federal Transit Administration funding to cover 80% of the cost of transit-related improvements in or near Pickering Square.

*Airport Mall*

The consultants considered alternative locations for an outlying transfer hub near the Airport Mall and Bangor International Airport. They recommend that new bus stops be constructed at the Airport Mall on the access drive next to Hannaford. A stop for one bus would be added on the Hannaford side of the access drive, and space for three buses would be added next to Union Street. This approach assumes that delivery trucks will not block vehicular access around the rear of the Hannaford store. If access around the store cannot be assured, the consultants recommend construction of a transfer island on the Griffin Road side of the Airport Mall property.

The consultants recommend that the City of Bangor apply for Federal Transit Administration funding to cover 80% of the cost of these Airport Mall bus stops. If federal funding is available, the city and the mall owners could be each asked to contribute 10% of the project cost.

*Changes to Community Connector Bus Routes*

The consultants recommend that the transit system introduce the following changes to the Community Connector route structure:

- Introduce 30-minute service in both directions on a combined Center Street / Husson University / Hammond Street bus route. This new route would provide improved access and more frequent service to Husson University. It would provide improved access to Community College and Bangor International Airport, while reducing the number of people who transfer between buses at Pickering Square. This new combined route would replace the existing Mall Hopper service, which means that the transit system would no longer offer a direct link between the Broadway Shopping Center and the Bangor Mall.

- Streamline the Capehart route by eliminating diversions to the airport and the Department of Human Services building. This will allow midday Capehart service to operate with two buses instead of three. The airport and DHS would instead be added to the route of Center Street / Husson University / Center Street buses.

- Revise Odlin Road service by beginning the route at the Airport Mall, and by operating it hourly throughout the day. This will provide faster and more convenient access to Odlin Road destinations, while reducing downtown transfer activity at Pickering Square.

- Add a third bus to the Old Town route during peak commuting times to provide 30-minute headways between downtown Bangor and the University of Maine. Old Town partners should also consider extending the hours for the extra afternoon bus to provide evening service between the University and downtown.

## 1.3 Summary of Findings

*Study Purpose*

1. Groups and individuals working to revitalize downtown Bangor would like better utilization of public spaces like Pickering Square. They envision a public square that is less isolated and more attractive. They want safe and friendly pedestrian access – to Pickering Square, to the parking garage, and through the square to the Bangor waterfront. They envision increased cultural and commercial activity in and around the square, including adjacent shops and restaurants.

2. Bus riders and community members concerned about the future of the Community Connector envision a regional transit system that utilizes well-designed facilities to provide safe, comfortable, convenient, and efficient service. They want a service that appeals to a wide cross-section of community members, including commuting professionals, office workers, and college students, as well as young people, senior citizens, people with disabilities, and low-income residents without cars. They want people of all backgrounds to feel comfortable and safe using the region's transit system. And they want a transit service design that provides fast, frequent, and direct service, with a minimum of required transfers and delays.

*Community Connector Ridership and Transfer Activity*

3. In FY 2012, the busiest route in the Community Connector system was the Capehart route, with 187,240 boardings. The Capehart route generated 20% of 2012 regular route ridership. The next busiest route was Old Town, with 150,015 boardings, or 16% of the system total. The six busiest Community Connector routes accounted for 78% of regular route boardings in FY 2012. The six routes were Capehart, Old Town, Hammond Street, Stillwater Avenue, Mount Hope, and Center Street.

4. A one-day study of transfer activity carried out on June 12, 2013 found that 87% of transfer activity took place in downtown Bangor at Pickering Square. The route with the highest level of transfer activity was the Capehart route, followed by Hammond Street and Center Street. Six of the top ten origin-destination route pairs involved transfers to or from the Capehart route.

5. The Transit Hub Alternatives Study began too late in the year to include transfer activity by university students. If the University of Maine March 2013 average daily boardings are added to the results of the June 12 transfer survey, the results show very strong transfer activity from the Capehart route, plus reasonably strong transfer activity from Center Street, Mount Hope, Hampden, and Hammond Street.

6. Transfer activity is concentrated among six routes. Because hourly departures on two routes are 30 minutes apart, the six busiest routes involve five buses that depart at the same time from the downtown Bangor hub.

7. While there are fewer transfers involving Hampden and Brewer bus routes, these connections are nonetheless important for the people using them. This is particularly true for people who are commuting to and from work and school.

8. It may be possible to reduce downtown transfer activity by interlining buses between route pairs. The transfer study suggests that the best candidates for interlined service are Capehart to Stillwater Avenue and Capehart to Mount Hope. Another route pair that appears to be a promising candidate for interlined service is Hammond Street - Center Street.

9. There may be potential for an improved network of connections near the airport, especially if this includes access to the Hammond Street route, Husson University, the Center Street route, and the Odlin Road route.

*Public Comments and Suggestions*

10. A pubic workshop to discuss the future of the Community Connector and Pickering Square was held at Bangor City Hall on the afternoon of Thursday, June 27. About 50 people participated in the June 27 workshop. Others who could not attend submitted written comments.

11. Most people favored keeping the transfer hub at Pickering Square. Others described problems with the existing situation.

12. A gentleman who was served as the city engineer from 1960 to 1992 talked about the decision to move the transit hub from State Street to its current location. He said that the Pickering Square arrangement provides convenient pedestrian access to the downtown, while eliminating the need for curbside bus stops in the downtown center. The site is also near to downtown apartment buildings. He said: "I am very opposed to moving the bus terminal from its current location."

13. An older gentleman with a cane said: "I use the bus fairly often." He said that the Pickering Square location provides convenient access to downtown banks, the Hammond Street Senior Center, City Hall, the University of Maine art museum, and to other downtown destinations. He said: "Don't make me transfer to get downtown, especially if this will make it take longer to get there."

14. Another elderly gentleman who lives on "the west side of town" said he is an eleven-year bus user. He said: "Don't move the Pickering Square hub." He did suggest, however, that satellite hubs could be established to improve movement between bus routes. He suggested, for example, that the Hammond Street and Odlin Road routes could be extended a relatively short distance to connect with the Capehart route.

15. The property manager for apartments in the Freese's building said that convenient access to the Community Connector is the reason that many people moved to this downtown location.

16. An Orono resident who has been using the transit system "since it began 30-odd years ago" wrote to "refute the claims that it is the transit hub that draws 'undesirables' to downtown Bangor." She said that homeless people in downtown Bangor are not there because of the transit system, and that bus riders in Pickering Square are "on their way to work, shopping or appointments." She said bus riders provide "eyes on the square" and that they "help improve the location." She went on to say:

> The problems with Pickering Square are not caused by the bus system, but by design factors (being surrounded by parking lots, rear entrances and an enormous underutilized parking garage) that remove it from public scrutiny.

17. A Bangor resident who lives on Ohio Street said the current hub "is in a central, downtown location, easily accessed on foot from downtown businesses and residences. It is important to keep this." He suggested that the waiting room at Pickering Square could be improved. "If you offer people a nice place to wait, nice people will use the bus."

18. A Hampden resident who works in downtown Bangor and who been parking in the parking garage for eight years said: "As ridership has grown, significant safety issues have resulted with having the buses, riders, and automobiles converging in the same small area." She said:

> Riders – including small children – routinely walk out into the narrow roadway from in between the buses without looking for oncoming cars. Automobile drivers have to carefully navigate through the area as we cannot see the pedestrians until they step out in front of us.

She went on to observe:

> Another issue is that there are more and bigger buses and they no longer fit in that "hub" area. There are times when I have to sit and wait for the buses to leave because my little Volkswagen cannot pass in between the last bus in line and the curb so that I may enter the parking garage.

She also suggested "mini-hubs at the Bangor Mall, Airport Mall, Hammond Street, or Concord Coach terminal to allow for more efficient transfers and less congestion downtown."

19. A woman wrote to say that the parking garage "is not usable with the degree of loitering there" because "it feels unsafe." She said:

> I understand that people without vehicles need access to downtown too, but the energy that exists there is not conducive to business growth downtown. A change that satisfies all is needed.

20. A downtown business owner suggested: "Definitely move the Pickering Square hub." She said that the bus service is essential, but that moving the hub "does not mean eliminating bus stops downtown." She said that the city needs an intercity transportation

terminal "near the airport" for Concord Coach and Greyhound. She said that changes are needed at Pickering Square because of air pollution, noise, and congestion.

*Preliminary Review of Candidate Sites*

21. The consultants identified four strategies that would keep the Community Connector transfer hub at or near Pickering Square, along with seven additional sites in or adjacent to downtown Bangor. The consultants considered five outlying locations that could be used as transit hubs.

22. The consultants utilized sixteen criteria to screen potential sites. They recognized that no single site is likely to meet all of the identified project goals.

- Easy bus access and egress
- No need to create new downtown bus stops
- Easy pedestrian access to downtown senior apartments
- Publicly owned land
- Low capital cost
- Minimal increase in transit operating costs
- Central location
- Off-street location
- Opens potential Pickering Square storefronts
- Opens Pickering Square pathways
- Provides shorter bus rides
- Preserves existing parking
- Matches current rider patterns
- Ensures pedestrian safety
- Avoids repayment of FTA funds
- Has potential as an intercity bus terminal

23. A preliminary screening process involved assigning points to a candidate site according to whether it makes a positive or negative contribution toward meeting the identified criteria and goals. Typically, sites were assigned one point for a positive contribution, a negative point for a negative contribution, or zero points for no net change. In a few instances, sites were assigned plus two or minus two. This was done for sites that do a particularly good or poor job in meeting a particular goal. Some sites received zero points for individual criteria when the impact was unknown.

## Figure 1.1 Preliminary Screening Scores

| | Easy bus access and egress | No need for downtown bus stops | Easy walks to downtown senior apartments | Publicly-owned land | Low capital cost | Limited increase in operating costs | Central location | Off-street location | Opens Pickering Square store fronts | Opens Pickering Square pathways | Provides shorter bus rides | Preserves existing parking | Matches current rider patterns | Ensures pedestrian safety | Avoids repayment of FTA funds | Intercity bus terminal potential | TOTAL SCORE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Current Pickering Square driveways | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -2 | -2 | 0 | 1 | 1 | -1 | 1 | 0 | **6** |
| Current location, fewer buses | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -1 | -1 | 0 | 1 | 1 | 0 | 1 | 0 | **9** |
| Pickering Square @ Water Street | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -1 | 2 | 2 | 0 | -1 | 1 | -1 | 1 | 0 | **10** |
| Kenduskeag Plaza | -1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | -1 | 1 | 0 | -1 | 0 | **2** |
| Exchange Street, curbside | -1 | -1 | -1 | 1 | 1 | 1 | 1 | -1 | 2 | 2 | 0 | -2 | 1 | -1 | -1 | 0 | **1** |
| Exchange Street, parking lot | -1 | -1 | -1 | 1 | -1 | 1 | 1 | 1 | 2 | 2 | 0 | -2 | 1 | 1 | -1 | 0 | **3** |
| Summer Street | 1 | -1 | 0 | -1 | -1 | 1 | 0 | 1 | 2 | 2 | 0 | 1 | 1 | 1 | -1 | 1 | **7** |
| Railroad Street | -2 | -1 | -1 | 1 | 1 | 0 | 0 | -1 | 2 | 2 | -1 | -1 | -1 | -1 | -1 | 0 | **-4** |
| State & Central Streets | -1 | -1 | 1 | 1 | -1 | 1 | 1 | -1 | 2 | 2 | 0 | -2 | 1 | -1 | -1 | 0 | **1** |
| Old Police Station | -2 | -1 | -1 | 1 | -1 | 0 | -1 | 1 | 2 | 2 | -1 | 1 | -2 | 1 | -1 | 0 | **-2** |
| Penobscot Plaza | 1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | 2 | 2 | 0 | -1 | 1 | 1 | -1 | 0 | **0** |
| Airport without downtown hub | 1 | -1 | -1 | 1 | -1 | -1 | -1 | 1 | 2 | 2 | -2 | 1 | -2 | 1 | -1 | 2 | **1** |
| Airport with Water Street hub | 1 | 1 | 1 | 1 | -1 | 1 | 1 | -1 | 2 | 2 | 1 | -1 | 1 | -1 | 1 | 2 | **11** |
| Airport Mall with Water Street hub | 0 | 1 | 1 | 0 | 0 | 1 | 1 | -1 | 2 | 2 | 1 | -1 | 1 | -1 | 1 | 0 | **8** |
| Roundhouse property | -2 | -1 | -1 | 1 | -1 | -1 | -1 | 1 | 2 | 2 | -1 | 1 | -2 | 1 | -1 | 2 | **-1** |
| Downtown Brewer | -1 | -1 | -1 | 0 | 0 | -1 | -1 | 0 | 2 | 2 | -2 | 0 | -2 | 0 | -1 | 0 | **-6** |

24. The preliminary screening identified five candidates for more detailed consideration:

1. Keep buses at Pickering Square, but reduce the number, and move them away from the travel lane in front of the parking garage.
2. Keep buses at Pickering Square, but reduce the number, and move them to Water Street. Redesign Pickering Square driveways and pathways.
3. Same as option two, but include a transit hub at or near the Airport Mall.
4. Same as option two, but include a combined transit hub and intercity bus facility on Maine Avenue.
5. Develop a new transit hub on Summer Street.

*Detailed Analysis of Five Transit Hub Alternatives*

25. Chapter 7 provides detailed analysis of five alternative transit hub design strategies for the Community Connector transit system. The chapter describes how each transfer hub concept would impact bus routes, bus stops, transfers, schedules, and service frequency. It also provides a preliminary estimate of transit operating costs.

26. Strengths and weaknesses for six transit hub alternatives are summarized in Figure 1.2. Each of the five alternatives analyzed in Chapter 7 involves negative impacts for some groups in the community. For this reason, continued use of the two existing Pickering Square bus lanes was added as a sixth alternative.

27. Figure 1.3 shows the projected operating cost impact on local funding requirements if matching FTA subsidy dollars are available. Figure 1.4 shows the projected requirements for full-time buses. Figure 1.5 presents the engineers' opinion of probable construction costs.

28. Figure 1.6 presents a proposed Community Connector route map. Figure 1.7 presents a conceptual sketch of proposed landscape improvements for Pickering Square.

## Figure 1.2 Transit Hub Alternatives: Summary of Strengths and Weaknesses

| Alternative | Strengths | Weaknesses |
|---|---|---|
| **1. Limit buses at Pickering Square to no more than four at a time, and use just one of the existing bus stop lanes** | 1. Removes buses from the lane in front of the parking garage.<br>2. Reduces the impact on Pickering Square by reducing the number of buses.<br>3. Removes conflicts with cars entering the parking garage.<br>4. Little or no impact on operating costs. | 1. Introduces transfer delays for Hampden, Brewer, and Old Town bus riders.<br>2. Leaves pavement in front of the parking garage and leaves roadways encircling Pickering Square, limiting redesign options.<br>3. Pedestrian pathways continue to cross the bus stop site and multiple travel lanes. |
| **2. Use the Water Street side of Pickering Square, with a turnout parallel to Water Street** | 1. Removes buses and roadways from the front of the parking garage, creating opportunities for commercial use of the ground level.<br>2. Places buses on the side of Pickering Square, in a location where they will not block existing crosswalks and pedestrian pathways.<br>3. Allows for a Village Green-style redesign of Pickering Square.<br>4. Retains easy transit access for downtown residents.<br>5. Removes conflicts between pedestrians, buses, and cars.<br>6. Avoids a need for Main Street bus stops near West Market Square.<br>7. Less expensive than the Summer Street alternative.<br>8. Money invested in the transit hub will contribute to downtown improvements. | 1. Introduces transfer delays for Brewer and Hampden bus riders.<br>2. Restrooms and the heated waiting area will no longer be immediately adjacent to the bus stop.<br>3. Eliminates parking spaces along the Pickering Square side of Water Street.<br>4. Places buses between Key Bank Plaza and Pickering Square, which may be perceived as a visual and psychological barrier by Key Bank Plaza tenants. |
| **3. Option 2 plus an Airport Mall transit hub** | 1. A better transfer site is needed now.<br>2. An improved Airport Mall transfer hub will accommodate a new Hammond Street / Husson / Center Street route that will provide improved access to many Bangor destinations, while limiting the number of downtown transfers. | 1. Access along the side of the Hannaford store may be constrained at times by truck traffic.<br>2. A transit stop on the Griffin Road side of the Airport Mall will require passengers to walk through the mall building to reach Hannaford. |
| **4. Intercity bus terminal on airport property at Maine Avenue and Godfrey Boulevard** | 1. New improved intercity bus terminal for Concord Coach and Greyhound.<br>2. Overflow parking for Bangor International Airport.<br>3. Improved intermodal transportation links for the region. | 1. Three buses will be needed to maintain 30-minute headways on the Capehart route, resulting in higher operating costs.<br>2. This alternative will have a relatively high price tag. It is unknown whether federal funding will be available to help pay for this type of facility.<br>3. Improved bus stops at the Airport Mall will still be needed, even if most transfers take place at a new Maine Avenue terminal. |

| | | |
|---|---|---|
| **5. Summer Street** | 1. Removes buses from Pickering Square.<br>2. Accommodates seven buses at the same time, avoiding transfer delays. | 1. High price tag for design and construction, plus the unknown cost of acquiring the property.<br>2. Requires some bus riders to transfer to reach downtown.<br>3. Requires the addition of downtown bus stops on Water Street. Bus stops on Main Street may also be needed.<br>4. Service to the Bangor malls will need to be streamlined, eliminating some stops, to provide extra time for Stillwater Avenue and Mount Hope buses to reach Summer Street.<br>5. If a combined Hammond Street / Husson / Center Street route is not added, service on Center Street will need to be reduced to hourly to allow time to reach Summer Street. |
| **6. Continue to use the existing Pickering Square bus lanes, with renovated restroom facilities and redesigned pathways** | 1. Preserves all existing transfers.<br>2. No impact on operating costs.<br>3. Preserves existing on-street parking.<br>4. Avoids placing buses between Key Bank Plaza and Pickering Square | 1. Leaves pavement in front of the parking garage and leaves roadways encircling Pickering Square, limiting redesign options.<br>2. Pedestrian pathways continue to cross the bus stop site and multiple travel lanes.<br>3. Buses continue to present an obstacle for cars entering the parking garage at fifteen minutes past the hour. |

**Figure 1.3 Projected Local Operating Cost Increases with 50% FTA Subsidy**

| | Current System Design | Improved Odlin Road | Four Downtown Buses | Water Street | Water Street & Airport Mall | Water Street & Airport Bus Terminal | Summer Street |
|---|---|---|---|---|---|---|---|
| Bangor | 0 | -12,852 | -12,852 | -12,852 | 51,408 | 115,668 | 51,408 |
| Brewer | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VOOT | 0 | 0 | 32,130 | 32,130 | 32,130 | 32,130 | 32,130 |
| Hampden | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **NET CHANGE** | **0** | **-12,852** | **19,278** | **19,278** | **83,538** | **147,798** | **83,538** |

## Figure 1.4 Projected Requirements for Full-Time Buses

| | Current System Design | Current Design with Improved Odlin Road | Four Downtown Buses | Water Street | Water Street & Airport Mall | Water Street & Airport Bus Terminal | Summer Street | NOTES |
|---|---|---|---|---|---|---|---|---|
| Capehart | 2.6 | 2 | 2 | 2 | 2 | 3 | 2 | (a) |
| Hammond Street | 1 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Mall Hopper | 1 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Center Street | 1 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Hammond / Husson / Center | 0 | 0 | 0 | 0 | 4 | 4 | 4 | (b) |
| Stillwater Avenue | 1 | 1 | 1 | 1 | 1 | 1 | 1 | (c) |
| Mount Hope | 1 | 1 | 1 | 1 | 1 | 1 | 1 | (d) |
| Old Town | 2 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | (e) |
| Brewer North | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Brewer South | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Hampden | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Odlin Road | 0.6 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **TOTAL** | **13.2** | **13** | **13.5** | **13.5** | **14.5** | **15.5** | **14.5** | |
| | | | | | | | | |
| Bangor | 8.2 | 8 | 8 | 8 | 9 | 10 | 9 | |
| Brewer | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| VOOT | 2 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | |
| Hampden | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **TOTAL** | **13.2** | **13** | **13.5** | **13.5** | **14.5** | **15.5** | **14.5** | |

NOTES:

(a) With a new intercity bus terminal, a third Capehart bus would be needed because of the time required to serve this location.

(b) Four Hammond/Husson/Center Street buses will preserve 30-minute headways.

(c) For Summer Street, Stillwater Avenue would need to be streamlined to preserve 60-minute service.

(d) For Summer Street, Mount Hope would need to be streamlined to preserve 60-minute service.

(e) An extra Old Town bus would be needed between Bangor and Orono during peak commute hours.

## Figure 1.5 Engineers' Opinion of Probable Site Construction Costs

| Site | Cost | Comments |
|---|---|---|
| **Pickering Square – Construction of parallel Water Street turnout** | $240,000 | Walkway and landscape improvements are addressed separately. |
| **Pickering Square – Landscape improvements, including pavers, loam, seed, plantings, and furnishings** | $455,000 | |
| **Combined cost for Pickering Square** | $695,000 | |
| **Airport Mall – Bus island on the Griffin Road side of the mall** | $124,000 | |
| **Airport Mall – One space adjacent to Hannaford** | $20,000 | The single space next to Hannaford could be combined with three spaces along Union Street, or the single space next to Hannaford could be combined with the bus island on the Griffin Road side of the mall complex. |
| **Airport Mall – Three spaces adjacent to Union Street** | $22,000 | |
| **Bangor International Airport – Intercity bus terminal and overflow airport parking** | $2 - 2.5 million plus $900,000 for a terminal building | This is an order of magnitude estimate. Costs will depend on the number of parking spaces and on existing soil conditions. |
| **Summer Street** | $1 million plus $195,000 for a building with restrooms and a passenger waiting room | This is an order of magnitude estimate. It does not include the unknown cost of acquiring the privately owned site. |

**Assumptions and Exclusions**

1. Estimates are based on conceptual plans dated December 2013. These estimates do not benefit from survey or design of grading and drainage. Estimates are for the approximate construction cost and exclude costs for design, permitting, construction management, and inspection.

2. All estimates, with the exclusion of Pickering Square landscaping, were provided by Fay, Spoffard and Thorndike, Inc. The Pickering Square landscaping estimate was provided by Coplon Associates.

3. The consultants have provided these estimates with the understanding that neither FST, Inc. nor Coplon Associates has control over the cost or availabilitiy of labor, equipment and materials, or over market conditions or contractors' methods of pricing, and that the Engineer's Opinion of Probable Construction Cost is based on the professional judgment and experience of FST and Coplon Associates. FST Inc. and Coplon Associates make no warranty, expressed or implied, that future bids or negotiated costs will not vary from the Engineer's Opinion of Probable Construction Costs.

**Figure 1.6 Revised Community Connector Route Map**

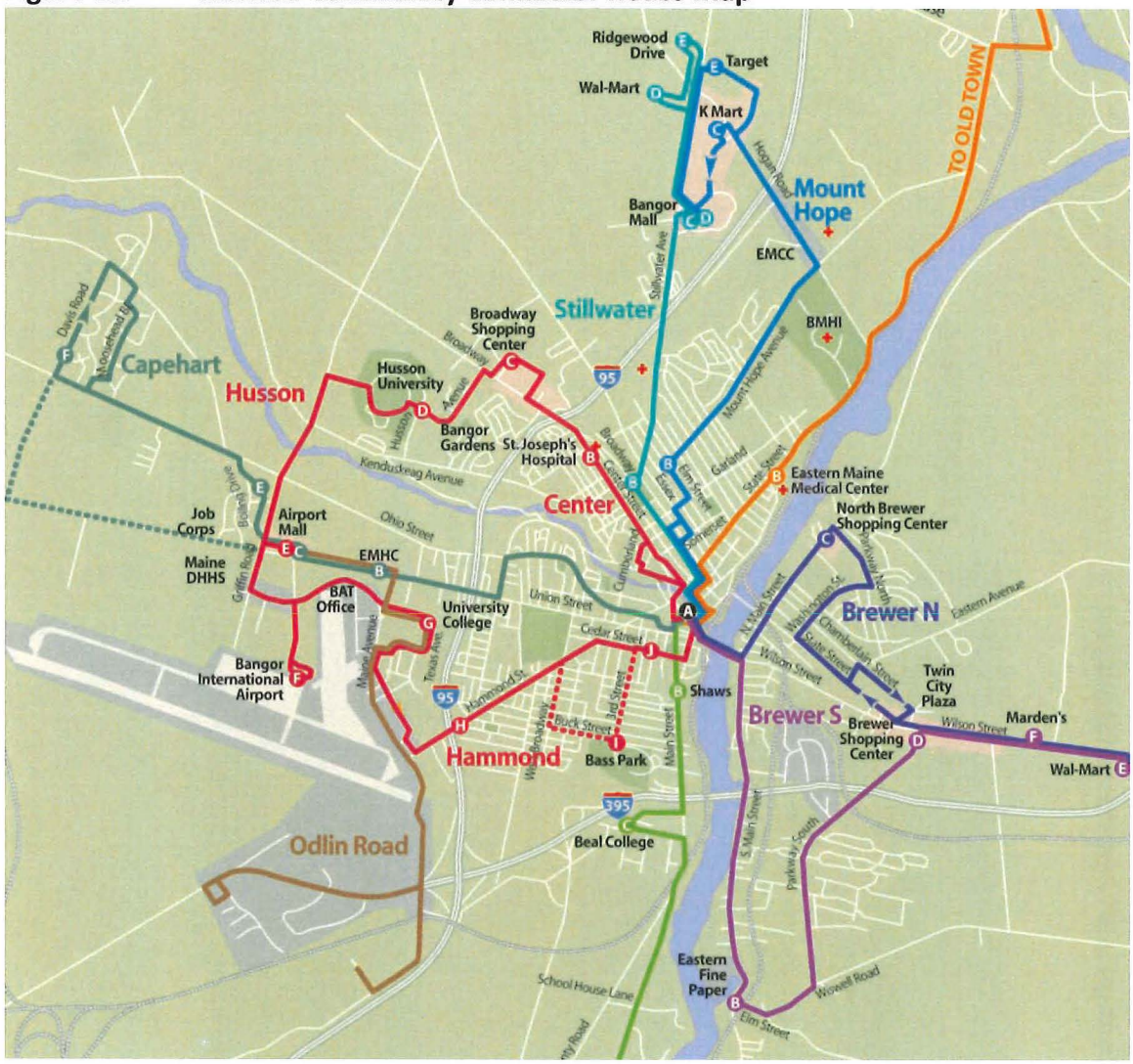
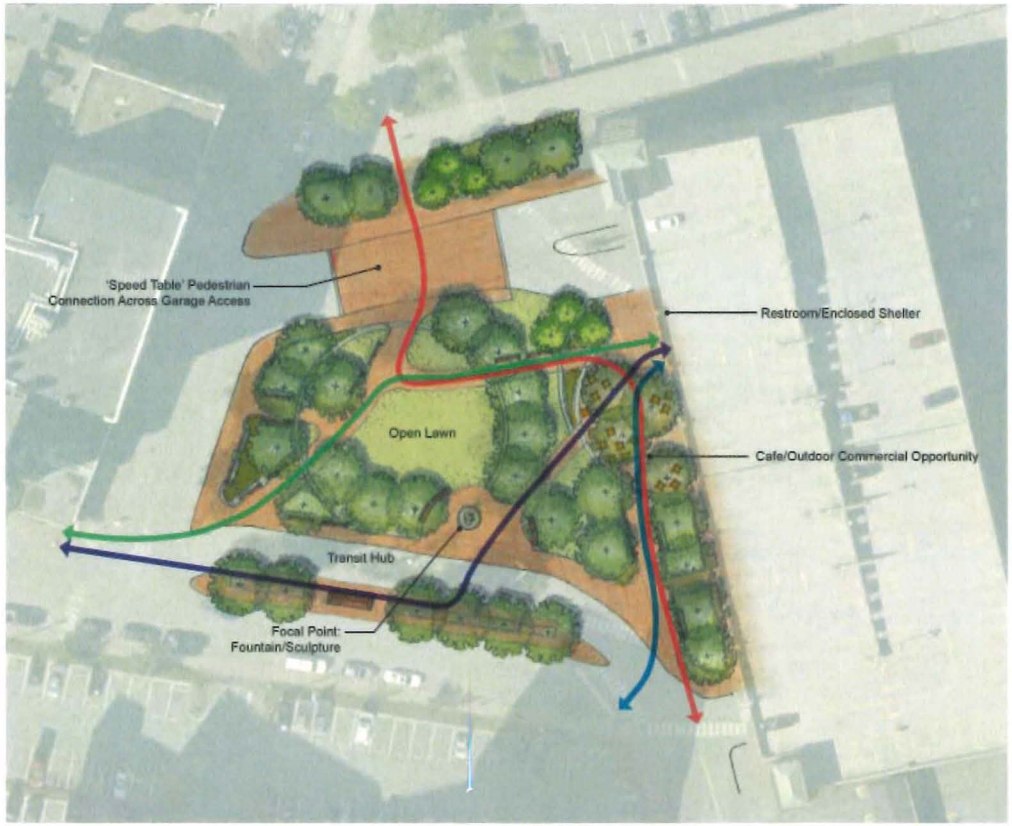


**Figure 1.7 Pickering Square Landscape Concept with Pedestrian Circulation**




PEDESTRIAN CIRCULATION KEY

- Parking to Main Street
- Waterfront to West Market Square
- Parking to Key Bank Building
- Transit Hub to Shelter/Downtown/Senior Housing

**City of Bangor**
**Renovations to Pickering Square, Concept B.**
JANUARY 16, 2013

COPLON ASSOCIATES
Landscape Architecture and Planning

SCALE OF FEET

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# Chapter 2: Study Purpose

This chapter addresses the context in which this *Transit Hub Alternatives Analysis* is being carried out. It describes the issues and problems that led the City of Bangor to undertake this study, and it formulates goals that will help guide the planning effort. It identifies a preferred future for downtown Bangor, including Pickering Square, and it describes a preferred future for the Community Connector transit service. It suggests that a revitalized downtown and an enhanced regional transit system may both require changes and improvements to the current situation at Pickering Square.

The chapter includes four sections:



## 2.1 Pickering Square and Downtown Bangor

Groups and individuals working to revitalize downtown Bangor would like better utilization of public spaces like Pickering Square. They envision a public square that is less isolated and more attractive. They want safe and friendly pedestrian access – to Pickering Square, to the parking garage, and through the square to the Bangor waterfront. They envision increased cultural and commercial activity in and around the square, including adjacent shops and restaurants.

There are a variety of real and perceived obstacles that must be overcome to realize this vision for an improved Pickering Square.

- Pedestrian pathways are fragmented, uneven, and indirect. This results, in part, from the landscape design, and in part from a convergence of pedestrian, bus, and automobile traffic in the square.
- Because of the site design and the mix of uses at Pickering Square, safety issues and conflicts arise between automobiles and buses, and between pedestrians and various motor vehicles. Cars often must pass multiple buses to gain access to the parking garage. Bus riders switching buses sometimes emerge suddenly from between parked buses. The pedestrian pathway from the parking garage to West Market Square passes directly in front of the parking garage entrance. The pedestrian pathway from the parking garage to Main Street crosses multiple driveways before crossing the center of the square.

- The brick circle in the middle of Pickering Square is surrounded on all sides by paved roadways, creating an island that is separated from the surrounding landscape, with little to invite people to the walk through or to utilize the available space.
- There is no commercial activity adjacent to Pickering Square. The square is bordered by a bank parking lot, the unused underside of a large parking garage, and the largely unoccupied ground floor at the back of the Freese's building.
- The sidewalks bordering potential commercial space on Merchants Plaza and under the parking garage are narrow, offering limited appeal to potential pedestrian shoppers.
- The potential commercial space under the parking garage is blocked twice an hour for 10 minutes at a time by a noisy and intimidating wall of large diesel buses. This involves seven buses at 15 minutes past the hour, and five buses at 45 minutes past the hour. The close proximity of buses limits the appeal of this space for future commercial tenants.
- Transit buses are diesel powered and noisy.
- Because of its relative isolation, Pickering Square has experienced some criminal activity, including the sale and use of illegal drugs.
- Unemployed young people sometimes congregate in Pickering Square. They are sometimes unruly. Even when they are well behaved, these groups can be intimidating to individuals and families who must pass through the square when walking from the parking garage to Main Street.
- Some of the people who congregate in Pickering Square are perceived to be vagrants who utilize the pretext of "waiting for a bus" to justify their presence there.
- Some area residents who do not utilize the bus system fail to differentiate between Pickering Square vagrants and lower-income bus riders.
- As bus usage has grown, the size of transit buses has increased. Sometimes the last bus to pull up in front of the parking garage blocks cars from approaching the parking garage entrance.
- As bus usage has grown, the numbers of people waiting for buses and transferring between buses has likewise increased. These crowds can be intimidating for other pedestrians who do not utilize the transit system.
- The public restrooms at the bus garage transit hub are small and relatively unattractive. Because of their isolated location, they can be perceived as conducive to illegal drug activities.
- There is a lot of pavement, and little ground level greenery within the square.

## 2.2 Community Connector

Bus riders and community members concerned about the future of the Community Connector envision a regional transit system that utilizes clean, safe, friendly, appealing, and well-designed facilities to provide safe, comfortable, convenient, and efficient service. They want a service that appeals to a wide cross-section of community members, including commuting professionals, office workers, and college students, as well as young people, senior citizens, people with disabilities, and low-income residents without cars. They want people of all backgrounds to feel comfortable and safe using the region's transit system. And they want a transit service design that provides fast, frequent, and direct service, with a minimum of required transfers and delays.

There are a number of obstacles that must be overcome to realize this vision for public transportation in the Bangor region. In some cases, these are the same obstacles that confront people interested in improving the public landscape at Pickering Square.

- A large percentage of Community Connector passengers transfer between buses in front of the Pickering Square parking garage, a location that is relatively isolated from other downtown activities.
- There is no commercial activity adjacent to the transfer site. Some passengers must board buses in front of the vacant and intimidating underside of the Pickering Square parking garage.
- Because of its relative isolation, Pickering Square attracts groups of unemployed youth who congregate in the square. This situation can be intimidating for some people who might otherwise consider using the transit service.
- There has been both real and perceived criminal activity at Pickering Square, including the use and sale of illegal drugs.
- The parking garage waiting room and restrooms are small and relatively unappealing. These public restrooms are locked on weekends.
- Pickering Square is the meeting place for as many as seven large, noisy diesel buses, a situation that can be unappealing and intimidating for some potential transit users.
- There is a lack of clear pathways for pedestrians walking between the transit hub and downtown destinations.
- Safety concerns arise due to the convergence in the square of pedestrian, bus, and parking garage automobile traffic.

The transit program faces a number of other obstacles that are not directly related to the situation at Pickering Square.

- There is no service in the evening for office workers who work late, for people with evening retail jobs, or for college students.
- Some routes, especially the Old Town service, have infrequent service during peak commuting hours, resulting in overcrowded buses.

- The Community Connector offers infrequent Saturday service on some routes, and no Sunday service.
- The hub-and-spoke service design results in indirect and time-consuming travel between some origin-destination pairs.

## 2.3 Bangor's Intercity Bus Terminals

While intercity bus service is not a primary focus of this transportation study, some community members have suggested that an improved Bangor transit hub could perhaps accommodate intercity buses operated by Concord Coach and Greyhound. This suggestion has arisen in part because Greyhound recently closed its downtown terminal. Greyhound now serves Bangor with a stop at Dysart's in Hampden, a location that is several miles outside the Community Connector service area.

Concord Coach continues to serve Bangor with a privately owned terminal on Union Street, a location which features free parking for bus passengers. While this facility appears to be working well for the bus company and its passengers, it has two limitations.

- While outbound Capehart buses can and do stop on Union Street in front of the Concord Coach terminal, the site is not designed to accommodate local transit buses. Moreover, inbound buses cannot cross this busy roadway to stop at the Concord Coach facility.
- While the size of the Concord Coach parking lot appears to be adequate for the current level of demand, the existing site has limited ability to accommodate future growth.

A preferred future for the Bangor region might include a new, easily accessible intercity bus terminal served by Concord Coach, Greyhound, and the Community Connector. Some have suggested that such a facility should be located near the Bangor International Airport, with convenient shuttle links between terminals.

A combined intercity and transit facility could be publicly owned and funded, like the intercity bus terminal in Concord, New Hampshire. Or it could be privately owned, like the Portland Transportation Center, which is owned by Concord Coach and utilized by Concord Coach and Amtrak.

## 2.4 Project Goals

This section provides a set of preliminary goals to help guide this transit hub study. Some goals address the situation at Pickering Square, while others are relevant for the region's transit program.

*Pickering Square*

Develop a plan that will transform Pickering Square into a friendly, hospitable, and inviting public space that will be enjoyed by a wide variety of Bangor residents.

Redesign Pickering Square to include pedestrian pathways that are obvious, direct, and well designed. Pathways should not require walkers to pass through areas where groups of people congregate.

If buses continue to serve Pickering Square, develop a strategy that involves fewer buses converging at the square at any one time.

Work with the Federal Transit Administration and the Maine Department of Transportation to obtain grant funding for quieter, alternative-fuel buses.

Develop a plan that ensures adequate separation of pedestrian, bus, and automobile traffic at Pickering Square. This plan must include safe, unobstructed automobile access to and from the Pickering Square parking garage.

Develop a plan that will encourage the development of shops and restaurants adjacent to Pickering Square, ensuring, among other things, that there is adequate sidewalk space in front of potential business locations.

*Community Connector Goals*

Develop a plan for the Community Connector that includes friendly, pleasant, and inviting locations for transferring between bus routes, thereby helping to ensure that the transit program appeals to a wide variety of Bangor residents.

Ensure that bus riders have convenient access to downtown Bangor from locations throughout the Community Connector service area.

Continue to provide downtown residents, including senior citizens who live in the Freese's building, with safe and convenient access to multiple Community Connector bus routes.

Ensure that Community Connector bus service is as fast and as direct as possible, limiting the need for transfers, and minimizing the time required to travel between important origin and destination pairs.

Identify potential sites for satellite transit hubs, and develop routes and timetables that use these locations to provide faster and more efficient service.

Develop a plan that includes attractive shelters and restroom facilities at primary Community Connector transfer sites.

Identify opportunities for a new combined transit and intercity bus terminal in Bangor, perhaps in the vicinity of the Bangor International Airport.

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# Chapter 3: Community Connector Ridership and Transfer Activity

This chapter examines recent Community Connector ridership patterns, with a special focus on transfer activity at Pickering Square. It includes the results of a June 2013 transfer study that analyzes how current riders use Community Connector buses to complete trips that involve more than one route. It highlights ridership findings that are particularly relevant for transit hub planning.

The chapter includes five sections:



## 3.1 A Brief History of Bangor Transfer Sites

When public bus service was instituted in Bangor in the 1970's, the system used small minibuses that met downtown on Central Street. During the early years of the project, transfer activity was switched from Central Street to State Street because some bus riders felt intimidated by patrons of bars that existed at that time on Central Street.

With the new State Street arrangement, buses formed a long queue along the east side of State Street. This eliminated nearly all parking spaces along the downstream side of the street. The city constructed a wooden shelter on the Kenduskeag Stream bridge to provide waiting bus passengers with protection from the rain and from cold winter winds. Because of the resulting single-file line of buses, transferring passengers were sometimes required to walk a considerable distance between buses.

Transfer activity was moved from State Street to Pickering Square, following construction of the Pickering Square parking garage in the early 1990's. The Federal Transit Administration provided grant funding to help pay for a heated waiting room, restrooms, sidewalks, and bus loading areas.

In the fall of 2003, the Bangor transit system introduced the Mall Hopper route, creating new outlying transfer hubs at the Airport Mall, the Broadway Shopping Center, and the Bangor Mall. The Mall Hopper route enables bus riders to ride between outlying Bangor locations without traveling all the way to the downtown center. The Mall Hopper bus operates hourly.

A 2003 transit study included an assessment of the Pickering Square transit hub. It highlighted a number of problems with the parking garage site, noting that "cars approaching the entrance to the Pickering Square parking garage use the same travel lane as buses, and this can cause delays for automobiles and a safety hazard for transferring bus passengers."

The 2003 study suggested that the heated waiting room and restrooms are "small" and "not particularly comfortable or visually appealing." It included the following comment about the Pickering Square landscape:

> Although it is located next to a small park, the current bus depot includes minimal visual enhancements. The predominant landscape feature is concrete. The unfinished underside of the adjacent parking garage is particularly problematic. The raw concrete and gravel is inhospitable, and feels more like a highway underpass than a passenger-friendly terminal. The setting, coupled with the fact that many bus users are low-income residents, may discourage some middle-class residents from taking advantage of the bus service.

The 2003 study evaluated six alternative downtown locations, but found none that were superior to the Pickering Square site. The report states:

> The alternative hub locations reviewed in this study appear to create more problems than they solve. Instead of moving to a less advantageous location, the consultants suggest that Bangor and its transit partners look for ways to improve the Pickering Square facility.

It included three suggestions: (1) finding commercial uses for the space beneath the parking garage, (2) creating larger and more comfortable public facilities, and (3) landscaping improvements, including "more attractive walkways."

## 3.2 Community Connector Ridership by Route

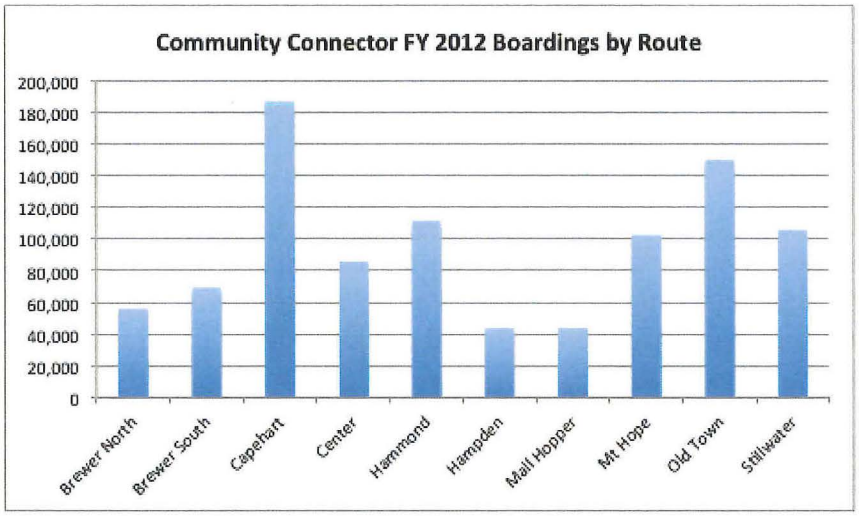
In FY 2012, the busiest route in the Community Connector system was the Capehart route, with 187,240 boardings. The Capehart route generated 20% of 2012 regular route ridership. The next busiest route was Old Town, with 150,015 boardings, or 16% of the system total.

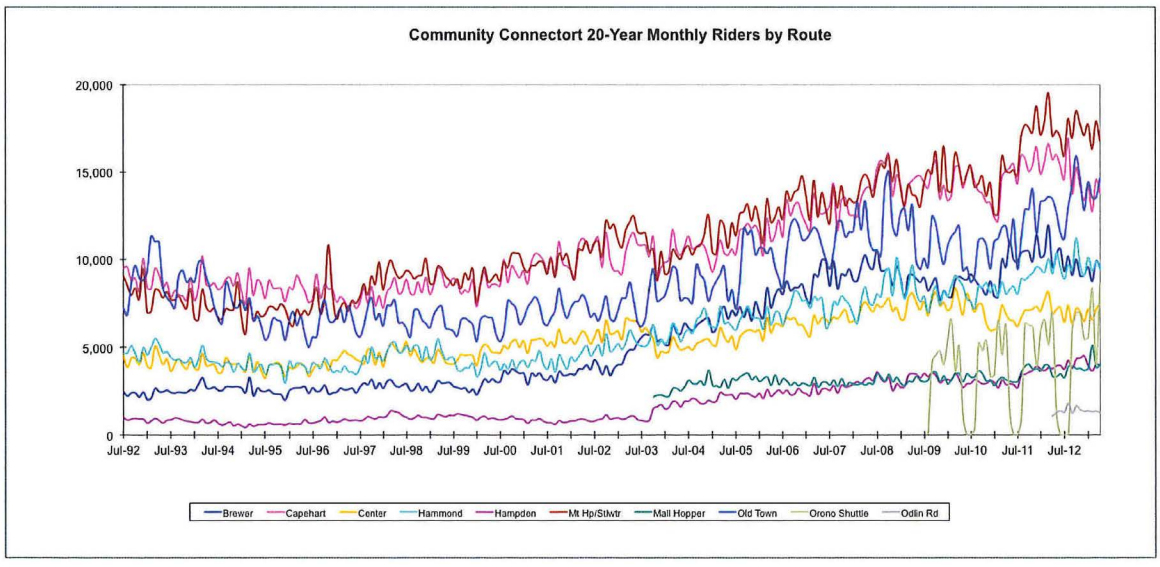
In October 2013, a combined Stillwater Avenue / Mount Hope service was divided into two separate routes. In FY 2012, the Stillwater and Mount Hope routes together generated a combined total of 209,105 rides, or 22% of system usage. The two Brewer routes together generated a combined total of 125,566 rides, or 13% of the system total.

The six busiest Community Connector routes accounted for 78% of regular route boardings in FY 2012. The six routes were Capehart, Old Town, Hammond Street, Stillwater Avenue, Mount Hope, and Center Street.

## FY 2012 COMMUNITY CONNECTOR RIDERSHIP BY ROUTE

| *Route* | *FY 2012 Riders* | *Distribution* |
|---|---|---|
| Capehart | 187,240 | 20% |
| Old Town | 150,015 | 16% |
| Hammond Street | 111,648 | 12% |
| Stillwater | 106,209 | 11% |
| Mt Hope | 102,896 | 11% |
| Center Street | 85,975 | 9% |
| Brewer South | 69,340 | 7% |
| Brewer North | 56,226 | 6% |
| Mall Hopper | 43,899 | 5% |
| Hampden | 43,761 | 5% |
| | 957,209 | 100% |



At least two observations are worth noting here:

- If Stillwater and Mount Hope are treated as a single route, then the busiest route pair in the Community Connector system is Capehart-Stillwater/Mount Hope. If demand remains at 2012 levels, a service plan that interlined buses between these routes would accommodate 42% of system ridership.

- The Old Town route generates 16% of annual ridership. There is considerable seasonal variation, with ridership dropping when University of Maine classes are not in session. Ridership has increased significantly since 2003, so that off-season low points are now higher than the peaks experienced prior to 2003.

## 3.3 June 2013 Transfer Study

A transfer study was conducted on all regular-route Community Connector buses throughout the day on June 12, 2013. All passengers who used more than one bus to complete a trip were asked to obtain a transfer from their first bus driver and to hand this transfer to the driver of their second bus. This included monthly pass holders and college students who board by showing their student ID's.

Transfers were collected in separate envelopes for each destination bus. Each transfer provides a record of the date, the route on which the transfer was obtained, and the time of day. This information was entered into an Excel database that was then analyzed with pivot tables to show transfer activity by route (origin and destination), by time of day, and by transfer location.

It is important to note that this transfer study was carried out after the close of the academic school year. For this reason, the results present only a partial picture of transfer activity. Transfers by college students are addressed in Section 3.4.

During the one-day study, a total of 819 transfers were collected. Eighty-seven percent of transfer activity took place in downtown Bangor at the Pickering Square bus depot. Seven percent of transfers took place at University College. The Airport Mall accounted for 3% of transfers, the Bangor Mall accounted for 2%, and the Broadway Shopping Center accounted for 1% of transfers.

The route with the highest level of transfer activity was the Capehart route, with a combined total of 338 transfers out of a two-way total of 1,636. This included 179 people transferring from the Capehart route, and 159 people transferring to the Capehart route. The route with the second highest level of transfer activity was the Hammond Street bus, with a combined total of 267 transfer movements. The next highest was the Center Street bus, with 208 transfers.

**COMBINED TO AND FROM TRANSFER ACTIVITY BY ROUTE**

| *Route* | *Transfers* | *Distribution* |
|---|---|---|
| Capehart | 338 | 21% |
| Hammond Street | 267 | 16% |
| Center Street | 208 | 13% |
| Mount Hope | 165 | 10% |
| Old Town | 149 | 9% |
| Stillwater Avenue | 143 | 9% |
| Brewer North | 94 | 6% |
| Hampden | 85 | 5% |
| Brewer South | 72 | 4% |
| Odlin Road | 60 | 4% |
| Mall Hopper | 55 | 3% |
| | 1,636 | 100% |

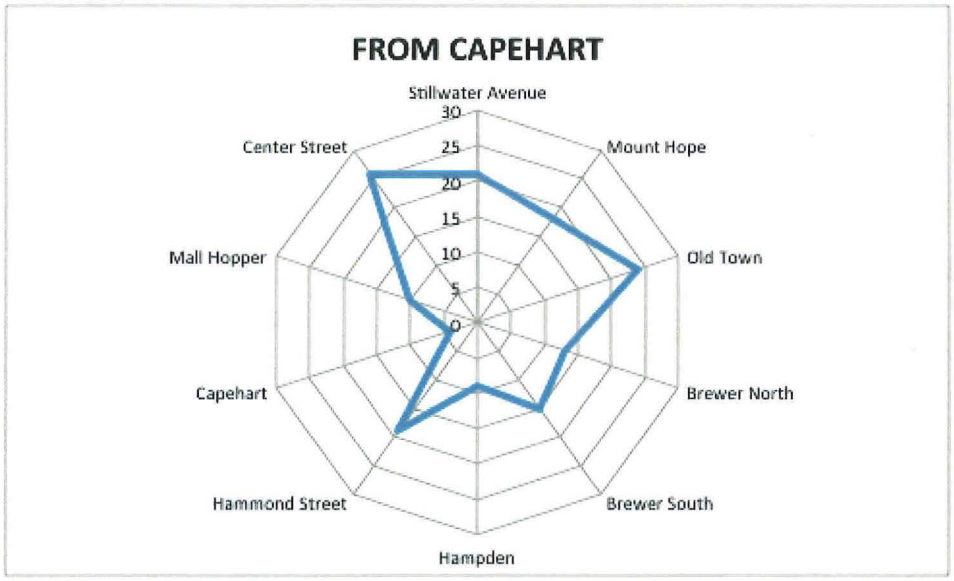
Six of the top ten origin-destination route pairs involved transfers to or from the Capehart route. The two busiest route pairs were Capehart-Hammond Street and Hammond Street-Odlin Road, followed by Capehart-Old Town, Capehart-Center Street, and Capehart-Stillwater Avenue.

**TOP TEN ORIGIN-DESTINATION ROUTE PAIRS**

| | |
|---|---|
| Capehart - Hammond Street | 58 |
| Hammond Street - Odlin Road | 58 |
| Capehart - Old Town | 52 |
| Capehart - Center Street | 47 |
| Capehart - Stillwater Avenue | 45 |
| Center Street - Hammond Street | 44 |
| Capehart - Mount Hope | 40 |
| Mount Hope - Hammond Street | 34 |
| Stillwater Avenue - Hammond Street | 29 |
| Capehart - Brewer South | 26 |

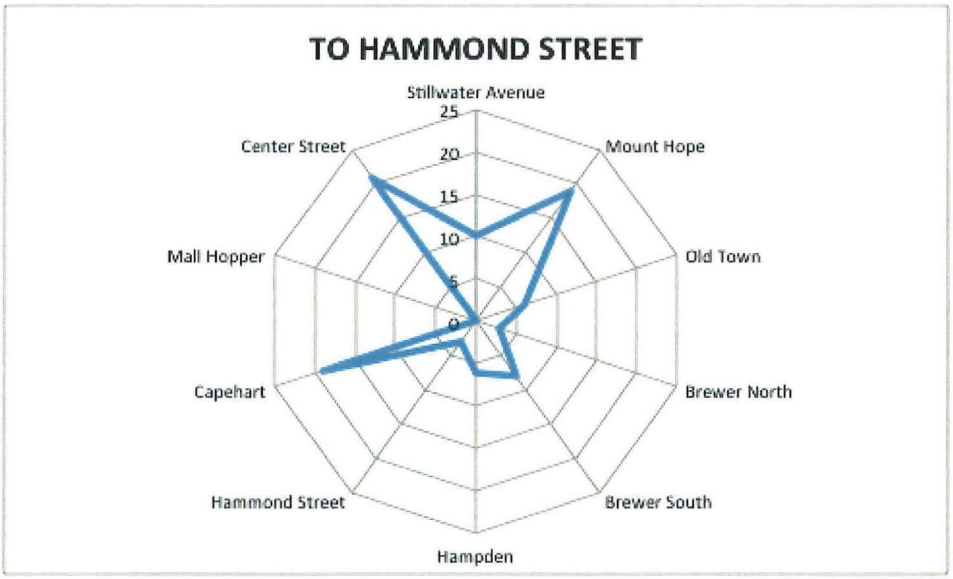
"Radar charts" can be adapted to show the level and direction of Community Connector transfer activity. Routes are arranged in a sequence that imitates their geographical distribution. A chart presenting the number of transfers from the Capehart route shows that between 20 and 25 people transferred from Capehart to the Center Street, Stillwater, and Old Town routes, while nearly 20 transferred to Hammond Street and Mount Hope.

**JUNE 12 TRANSFERS: FROM CAPEHART**



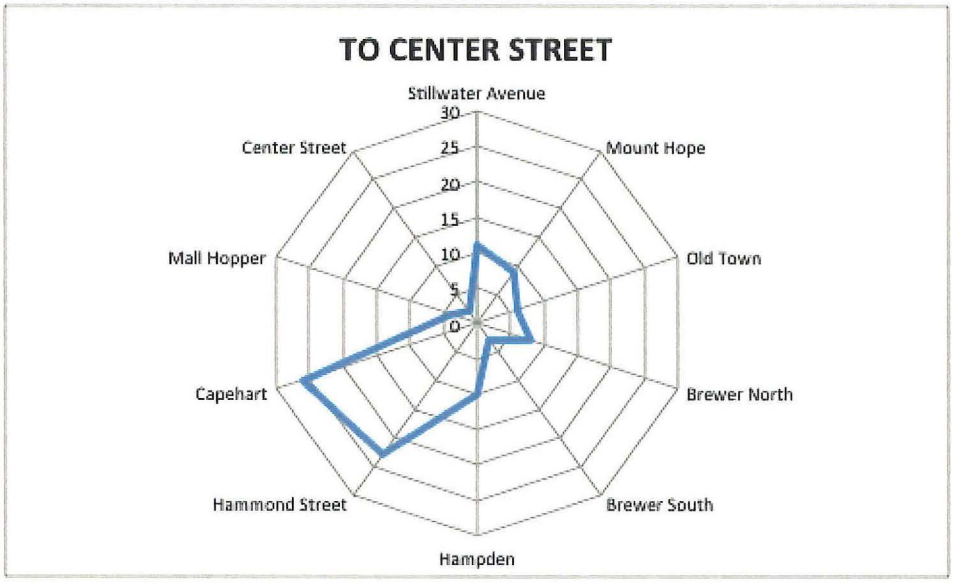

A chart for Hammond Street shows the relatively high level of transfers to the Hammond Street bus from Center Street, Capehart, and Mount Hope.

**JUNE 12 TRANSFERS: TO HAMMOND STREET**



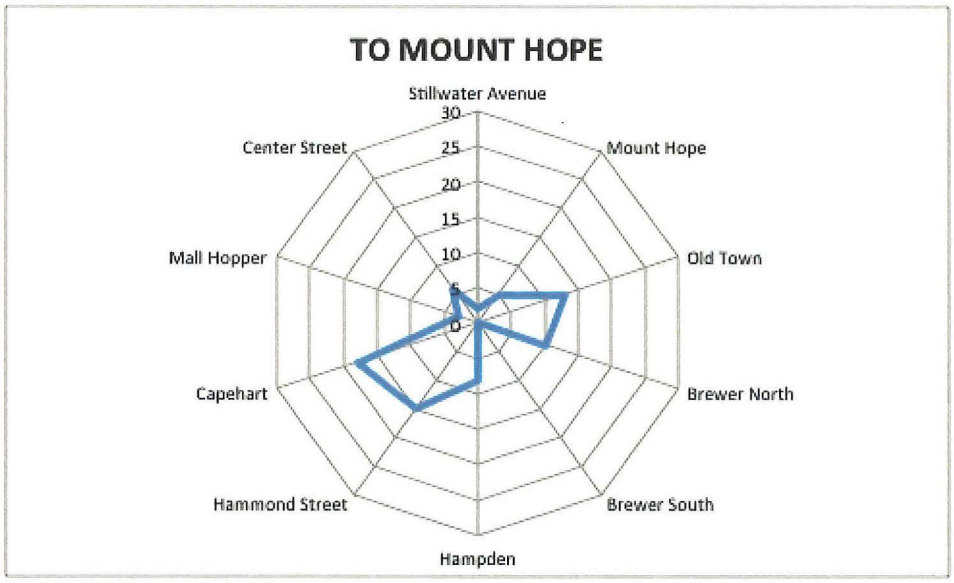
A chart for Center Street shows that the majority of Center Street transfers come from Capehart and Hammond Street.

**JUNE 12 TRANSFERS: TO CENTER STREET**



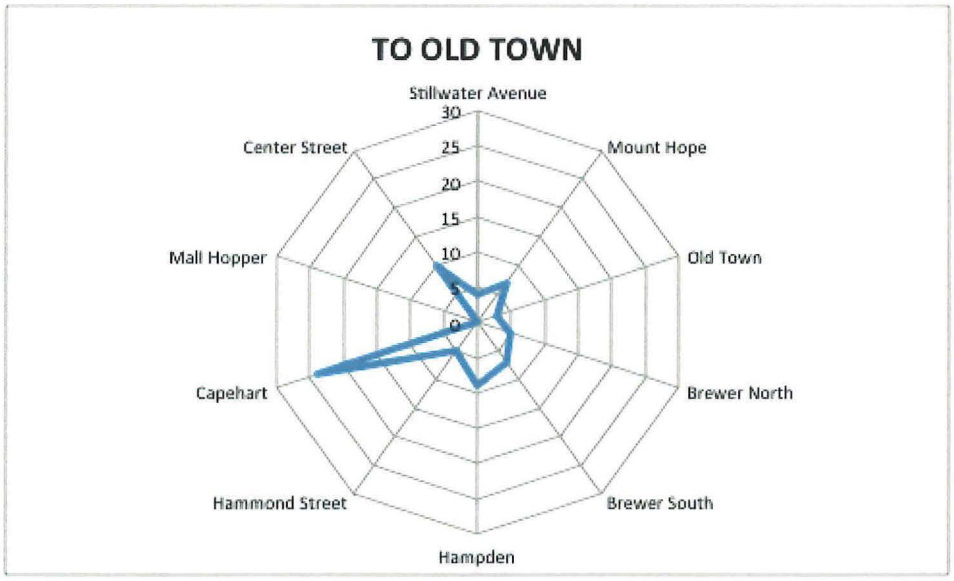

A chart for Mount Hope shows the highest level of transfers coming from Capehart and Hammond Street, with additional traffic from Old Town, Brewer North, and Hampden.

**JUNE 12 TRANSFERS: TO MOUNT HOPE**



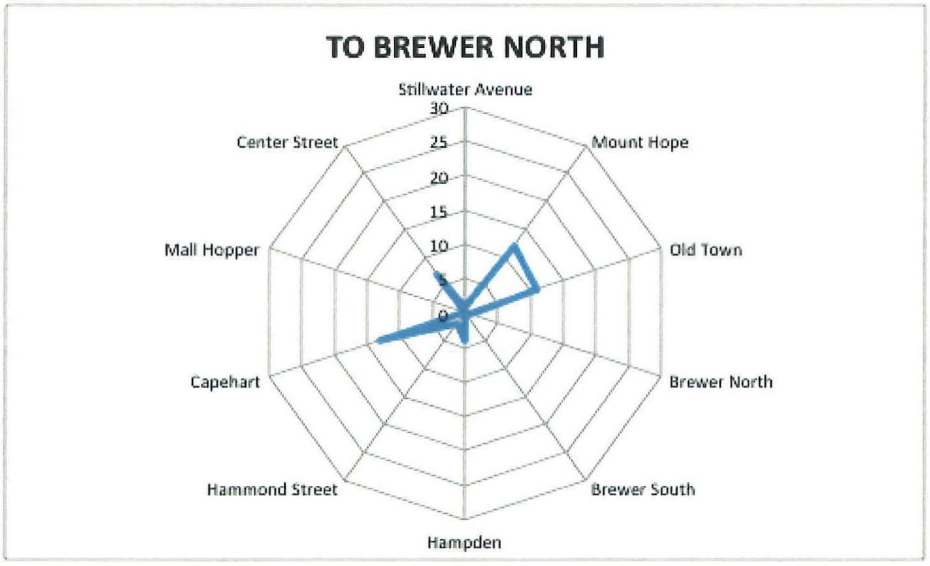
A chart for Old Town shows the highest number of transfers generated by the Capehart route, followed by Center Street, Hampden, and Brewer South. It should be remembered that this Old Town chart does not reflect transfer activity by University of Maine students that takes place during the academic year.

**JUNE 12 TRANSFERS: TO OLD TOWN**

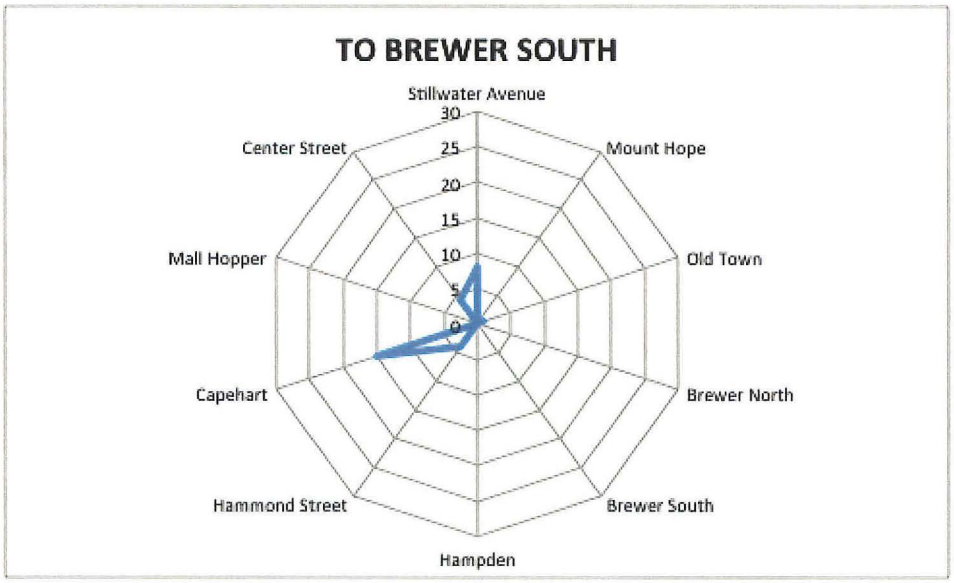



Charts for the two Brewer bus routes show a relatively low level of transfer activity to Brewer North, with even fewer transfers to Brewer South. During the June 12 survey of transfer activity, there were no transfers between the Brewer North bus and the Brewer South bus.

**JUNE 12 TRANSFERS: TO BREWER NORTH**



**JUNE 12 TRANSFERS: TO BREWER SOUTH**




## 3.4 Student Pass Transfer Activity

This Transit Hub Alternatives Study began too late in the year to include a survey of academic year transfer activity by university students. However, the Community Connector consistently monitors and records daily passenger boardings by fare type for each route in the system. This information can be used to estimate the level of college student transfer activity by route.

Ridership data for March 2013 shows that an average of 32 people per day boarded the Capehart bus by showing a University of Maine ID card. The next highest daily averages were 18 University of Maine boardings on Mount Hope, 14 each on Center Street and Hammond Street, and 10 each on buses from Brewer and Hampden. Stillwater Avenue accounted for 9 University of Maine boardings a day. The Old Town route generated an average of 274 University of Maine boardings per day.

It is worth noting that Old Town buses are scheduled to arrive Pickering Square at the top of the hour, while Mount Hope buses to the Bangor Mall depart at 15 minutes past the hour. Stillwater buses to the Bangor Mall depart at 45 minutes past the hour. The available data does not show how many of the 18 daily Mount Hope UMaine boardings involved students who were returning to Orono following visits to the Bangor Mall.

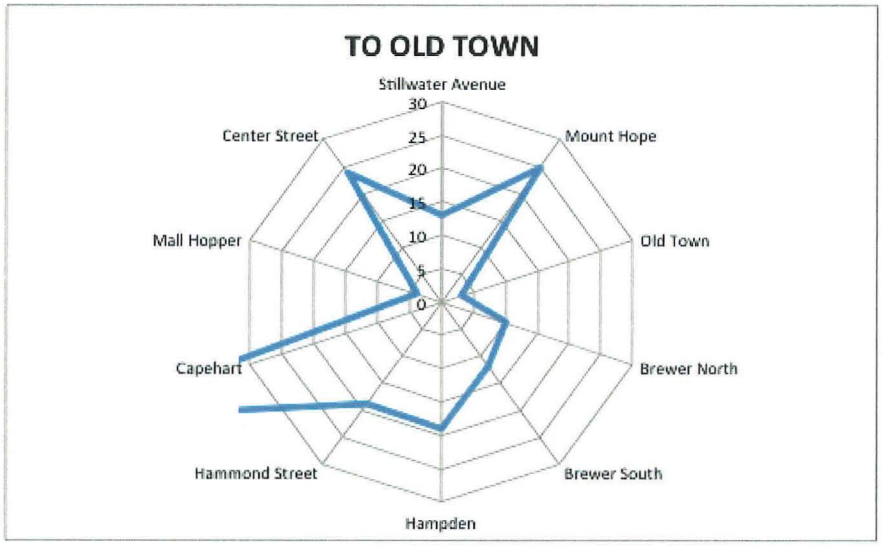
If the Mount Hope route is excluded, Eastern Maine Community College boardings during March 2013 were fairly evenly divided among the various Community Connector routes. Center Street generated 19 per day, while Hammond Street had 17, Capehart 15, Stillwater 13, Old Town 13, Brewer North and South 13, and Hampden 8. The Mount Hope bus generated an average of 58 EMCC boardings per day.

During March 2013, an average of 29 Husson College students per day boarded the Mall Hopper route, while 13 per day boarded the Center Street bus and 7 per day boarded the Capehart bus.

If the University of Maine March 2013 average daily boardings are added to the results of the June 12 transfer survey, a new picture of Old Town transfer movements emerges. This shows very strong transfer activity from the Capehart route, plus reasonably strong transfer activity from Center Street, Mount Hope, Hampden, and Hammond Street.

These figures may be somewhat overstated, because the revised chart assumes that all individuals who boarded with UMaine ID cards transferred to the Old Town route. It is also likely that some University of Maine employees are counted twice, as these individuals no doubt continued to ride the bus in June after the academic year ended.

**OLD TOWN TRANSFERS WITH UNIVERSITY OF MAINE ESTIMATES**




## 3.5 Ridership Findings Relevant for Transfer Hub Planning

This section highlights observations about ridership and transfer activity that should be kept in mind as transfer hub and service design alternatives are considered.

- Transfer activity is concentrated among six routes: Capehart, Old Town, Hammond Street, Center Street, Stillwater Avenue, and Mount Hope. With the exception of Old Town, all of these routes operate within Bangor only.

- Because Stillwater Avenue and Mount Hope departures are staggered by 30 minutes, the six busiest routes involve five buses that depart at the same time from the downtown Bangor hub.

- While there are fewer transfers involving Hampden and Brewer bus routes, these connections are nonetheless important for the people using them. This is particularly true for people who are commuting to and from work and school.

- It may be possible to reduce downtown transfer activity by interlining buses between route pairs. For example, a bus that arrives downtown as a Capehart bus could depart as a Stillwater Avenue bus. Interlining buses can be more convenient for passengers who no longer need to change buses. And it can reduce the amount of time that buses must wait downtown for transferring passengers.

- Transfer study results suggest that the best candidates for interlined service may be Capehart to Old Town, or Capehart to Stillwater Avenue / Mount Hope. Another route pair that appears to be a promising candidate for interlined service is Hammond Street - Center Street.

- The Bangor system may be a candidate for a service design that combines a frequent trunk line service with less frequent connecting local routes. If so, the obvious candidate for more frequent trunk line service appears to be the Capehart route. It would be helpful to assess how much of current Capehart usage involves people who board along the route segment that lies beyond the Airport Mall, how much takes place along Union Street, and how much involves the in-town Pickering Square-Ohio Street segment.

- It may be possible to extend a trunk line Capehart route beyond downtown Bangor. The candidate route segments for an extended trunk line appear to be the Bangor to Orono segment of the Old Town route, the Stillwater Avenue route to the Bangor Mall, and the Mount Hope route to Eastern Maine Community College.

- While transfer activity on the Mall Hopper route has been relatively light, the busiest Mall Hopper transfer location is the Airport Mall. There may be potential for an improved network of connections near the airport, especially if this includes access to the Hammond Street route, Husson University, the Center Street route, and the Odlin Road route.

# Chapter 4: Public Comments and Suggestions

This chapter describes efforts to involve members of the public in the transportation study and to obtain ideas and suggestions for the future of the Community Connector and Pickering Square. The first section provides the results of a June 27, 2013 public workshop. The second section summarizes written comments submitted at the time of the June workshop. The third section makes note of other meetings held during the course of the study.

The chapter includes four sections:



## 4.1 June 27, 2013 Public Workshop

A pubic workshop to discuss the future of the Community Connector and Pickering Square was held at Bangor City Hall on the afternoon of Thursday, June 27. Flyers informing the public about the workshop were distributed on Community Connector buses the week before the event. Announcements were also posted on web sites and distributed to all parties on the contact list of Bangor's downtown development committee. Local news media carried stories in advance of the meeting.

Approximately 50 people participated in the June 27 workshop. Others who could not attend submitted written comments. Written comments are addressed in Section 4.2.

The Assistant City Manager explained the purpose of the study and then introduced the consultant engaged by the city. The consultant provided an overview of his assigned planning tasks, and then asked for people to share their views, ideas, and concerns about the future of the Community Connector and Pickering Square.

1. The first speaker described himself as "a Pickering Square resident." He said that problems at Pickering Square have been adequately addressed by the city and that the bus depot should remain at Pickering Square.

2. A Bangor to Orono bus commuter praised the current location of the transit hub. He said it is "right downtown, yet a bit out of the way." His commute involves transferring between the Old Town bus and the Hammond Street bus. He said he often stops in downtown to shop on his way home from work. He suggested that the landscape of the square could be improved. He said: "Turn it green."

3. A senior citizen who lives adjacent to Pickering Square in the Freese's building said: "We rely on that bus. I like it down there. The teenagers don't bother me." She said that when there are problems at Pickering Square, it is usually late at night when the buses are not running.

4. A woman who said she has been using the transit system for three years said that the bus drivers deserve commendations for the way they do their job.

5. A gentleman who was served as the city engineer from 1960 to 1992 talked about the decision to move the transit hub from State Street to its current location. He said that the Pickering Square arrangement provides convenient pedestrian access to the downtown in all directions, while eliminating the need for curbside bus stops in the downtown center. The site is also near to downtown apartment buildings. He said: "I am very opposed to moving the bus terminal from its current location."

The former city engineer did suggest, however, that a modified plan could make use of the west side of Kenduskeag Plaza, perhaps for intercity buses. He said "Pickering Square has served a lot of good purposes over the years. Don't take away the park to get rid of the vagrants. Keep the park, and get the vagrants to leave." He encouraged the city to continue the current police patrols. He said: "Don't eliminate vehicle access to West Market Square." He also suggested that the traffic signal at Broad and Washington Streets should be vehicle actuated, so that traffic on Washington Street is not forced to wait when there are no cars or buses approaching the intersection on Broad Street.

6. A woman who said she has been using the Community Connector for five years said that the bus system is becoming increasingly important for area residents. She pointed out that "the cost of gas is not getting any lower," and observed that the system carries more and more riders who are not "financially destitute," including families with one car. She said that she has experienced no trouble at Pickering Square. She added that the Pickering Square restrooms should not be locked. She offered a variety of suggestions:

- Provide some sort of recreation center for unemployed youth.
- Consider a new entrance for the parking garage.
- Don't move the transfer hub more than an eighth of a mile from downtown, because doing this "would make transfers extremely difficult" and because it would "snarl up the whole thing."

She concluded her remarks by saying: "I am proud of our bus system."

7. An older gentleman with a cane said: "I use the bus fairly often." He said that the Pickering Square location provides convenient access to downtown banks, the Hammond Street Senior Center, City Hall, the University of Maine art museum, and to other downtown destinations. He said: "Don't make me transfer to get downtown, especially if this will make it take longer to get there." He made two additional suggestions:

- Provide more frequent bus service to Bangor Gardens.
- Repair the pavement in front of the Pickering Square parking garage.

8. Another elderly gentleman who lives on "the west side of town" said he is an eleven-year bus user. He said: "Don't move the Pickering Square hub." He did suggest, however, that satellite hubs could be established to improve movement between bus routes. He suggested, for example, that the Hammond Street and Odlin Road routes could be extended a relatively short distance to connect with the Capehart route.

9. A downtown business owner suggested: "Definitely move the Pickering Square hub." She said that twelve years ago, downtown Bangor was a "ghost town," and that now it is exciting. She said that the bus service is essential, but that moving the hub "does not mean eliminating bus stops downtown." She said that the city needs an intercity transportation terminal "near the airport" for Concord Coach and Greyhound. She said that changes are needed at Pickering Square because of air pollution, noise, and congestion. She added that more bus shelters are needed along Community Connector bus routes.

10. A divinity student working as an intern with the organization "Food & Medicine" said that the perception of bus riders as vagrants is incorrect. He said that moving the transfer hub will not solve the city's vagrancy problems. He said that efforts should be focused on improving the bus system.

11. An individual who has been using the bus system "since it started" said that buses increase the security at Pickering Square.

12. A young woman with an infant said that it would be foolish to move the transit hub away from downtown Bangor. She acknowledged that there might perhaps be a downtown alternative to Pickering Square. She added a number of comments and suggestions:

- The buses don't run late enough.
- You can't just hide away the people who don't look like you.
- More people should use the bus system.
- More transfer hubs should be added.
- The Bangor region needs designated bus stops and bus stop signs.

She concluded by saying: "Let's treat Bangor like a real city. Let's add more lines and more buses."

13. A woman who has used the bus system for ten years said that the transfer hub should stay where it is. She said: "It's practical." She likes the heated waiting room, and the fact that vending machine snacks are available. She said that there will always be problems, but that the good at Pickering Square far outweighs the bad. She agreed that the transit system needs later service and more buses.

14. A young man suggested that there are two separate issues that need to be addressed, improvements to the transit system, an "engineering problem," and behavior at Pickering Square, a "social problem."

- He said that the transit system needs more frequent peak-hour service. He suggested that people try riding the crowded 8:15 a.m. bus from downtown Bangor to Orono.
- He said that instead of "those people" at Pickering Square, we should refer to "those community members." He said that instead of "pushing them out," an effort is needed to reach out "to include them."

15. The property manager for apartments in the Freese's building said she was speaking "on behalf of my residents." She said the elderly residents of the Freese's apartments rely on the bus. She said the majority of residents do not have vehicles. She said that convenient access to the Community Connector is the reason that many people moved to this downtown location.

16. A young man said that, while he is not opposed to considering alternatives, he felt that the transit hub should remain at its current location. He pointed out that the needed infrastructure is already in place at Pickering Square.

17. Another young man said: "Keep the bus hub in the square, but do more in the square." He suggested a community garden as one possibility. He said: "We need creative solutions that give people ownership of the space."

18. A graduate student at the University of Maine said that his ability to be a student and a downtown resident depends on the availability of bus service. He said that he has never felt threatened in Pickering Square. He went on to talk about about a formerly homeless man that he met on the bus. He said that this individual found a job at Microdyne in Orono that he commutes to on the bus, and that as a result he was able to move out of the homeless shelter. However, the lack of evening bus service limits this person's access to promotions that would require him to work a later shift.

19. A woman asked about Odlin Road bus service. She said that she would like Odlin Road service to continue. She said that she needs this service for access to medical appointments.

20. A woman who lives in Orono and works in Bangor said that she has been using the buses since 1978. She emphasized the need for later evening service. She said: "We have the greatest bus drivers. They are kind and patient."

21. A gentleman said that he does not ride the bus, relying instead on his bicycle and his car. He said there is a need to "revitalize Pickering Square."

22. A woman who has been using the buses since 1992 said that the Mall Hopper route is particularly helpful to her. She lives in a residential neighborhood located on the Mall Hopper route segment that links the Broadway Shopping Center and the Airport Mall.

23. A Community Connector bus driver said that the driveways at Pickering Square do a good job of accommodating large buses. He said that satellite hubs are a good idea. He suggested establishing express routes with connecting local routes. He suggested that the transit system consider switching to propane-powered buses as a "green solution." He cited the Island Explorer transit hub at the Bar Harbor Village Green as a good model for Bangor. He pointed out that changes will cost money and that proposed improvements are likely to "create funding issues."

24. A blind person said: "I rely on the bus." She said she lives in the downtown area and can walk to Pickering Square. She offered the following comments and suggestions:

- "The buses stop running too early."
- "Pickering Square should be revitalized in a way that brings the community together, not apart."
- "Make it greener, nicer."
- "If you have to move it, keep it downtown."

25. An individual involved with organizing events in downtown Bangor wondered if the bus system has outgrown the current infrastructure at Pickering Square. He suggested that the transit system has not reached its full potential for benefiting the city and the region. He said that "creative ideas are needed," and that "other system designs are possible."

He said there is "a perception problem" on the part of young people who will not consider riding the bus. He also suggested that bus wrap advertising disguises the buses, and that better signage and marketing are needed.

This person shared written comments that he has received from two individuals: One person asked for "evening service, more Saturday service, and half-day Sunday service." Another that that "robust transit is wealth producing," and that area residents need evening and weekend service for access to entry-level jobs.

26. A woman said that attention needs to be paid to cleanliness, and that "Pickering Square is not a problem."

## 4.2 Written Comments Submitted in June 2013

27. A Bangor resident who commutes by bus to Orono wrote to say that "the current location of the hub at Pickering Square is ideal – right downtown, but at the same time a little bit out of the way so it doesn't interfere with the downtown traffic or shopping areas." He said he transfers between the Hammond Street bus and the Old Town bus, and very often takes care of "errands downtown before making my connection."

After noting that "the vast majority of people hanging out at Pickering Square are not there because of the bus," this person went on to suggest:

> My own preference for Pickering Square would be to turn it green – plant grass and tress, and landscape it like the park in downtown Bar Harbor. I think Bangor may be the only downtown I know with no grass!"

28. A woman who commutes by bus from Old Town to her job in Bangor said:

> I believe the BAT bus needs to stay in downtown Bangor. The Pickering Square location for the depot for bus pick-ups/transfers is the most convenient and centralized location. There are many seniors and disabled people who are not able to walk long distances to their appointments in the downtown area. And I don't even know another spot in the downtown area that could accommodate the buses and passengers.

29. A woman who has been using the transit system since 1975 said: "I recommend that the bus depot remain at Pickering Square as this is convenient for the elderly at Freese's Building and the Bangor House." She went on to say: "The cost of moving could be saved and used to continue with police service to the area."

30. A Bangor resident wrote to say that he uses the buses daily and that he walks through Pickering Square to get there. He observed that the people who congregate at Pickering Square "have nothing to do." He offered the following suggestion: "Utilize the space under the parking garage. Turn it into a rec center and snack bar. If they can play pool, ping pong, and air hockey, and grab a quick bite, they have less desire to cause or engage in trouble."

31. An Orono resident who has been using the transit system "since it began 30-odd years ago" wrote to "refute the claims that it is the transit hub that draws 'undesirables' to downtown Bangor." She said that homeless people in downtown Bangor are not there because of the transit system, and that bus riders in Pickering Square are "on their way to work, shopping or appointments." She said bus riders provide "eyes on the square" and that they "help improve the location." She went on to say:

> The problems with Pickering Square are not caused by the bus system, but by design factors (being surrounded by parking lots, rear entrances and an enormous underutilized parking garage) that remove it from public scrutiny.

32. A Bangor resident who lives on Ohio Street said the current hub "is in a central, downtown location, easily accessed on foot from downtown businesses and residences. It

is important to keep this." He cited a lack of connectivity between the BAT bus and intercity bus companies. He suggested that the waiting room at Pickering Square could be improved. "If you offer people a nice place to wait, nice people will use the bus." He suggested: "There is a business opportunity for someone to open a coffee and food service operation catering to bus passengers." He added: "Long term, I would like Bangor to develop a centrally-located public transportation center that serves the Community Connector, Concord Coach, and Greyhound."

33. A Hampden resident who works in downtown Bangor and who been parking in the parking garage for eight years said: "As ridership has grown, significant safety issues have resulted with having the buses, riders, and automobiles converging in the same small area." She said:

> Riders – including small children – routinely walk out into the narrow roadway from in between the buses without looking for oncoming cars. Automobile drivers have to carefully navigate through the area as we cannot see the pedestrians until they step out in front of us.

She went on to observe:

> Another issue is that there are more and bigger buses and they no longer fit in that "hub" area. There are times when I have to sit and wait for the buses to leave because my little Volkswagen cannot pass in between the last bus in line and the curb so that I may enter the parking garage.

She also suggested "mini-hubs at the Bangor Mall, Airport Mall, Hammond Street, or Concord Coach terminal to allow for more efficient transfers and less congestion downtown.

34. A woman wrote to say that the parking garage "is not usable with the degree of loitering there" because "it feels unsafe." She said:

> I understand that people without vehicles need access to downtown too, but the energy that exists there is not conducive to business growth downtown. A change that satisfies all is needed.

35. A woman who works in downtown Bangor submitted the following written comment: "I think the current location of the Bus area is appropriate, however I do believe that there needs to be more security."

## 4.3 Other Project Meetings

On May 14, 2013, lead consultant Tom Crikelair met with Bangor's City Manager, Assistant City Manager, and Community Connector staff to discuss expectations for the Transit Hub Alternatives Study.

On May 23, 2013, Crikelair met with members of Bangor's Economic Development Department to discuss design alternatives for Pickering Square and possible alternative transit hub locations.

On August 5, 2013, Crikelair met with Bangor's Government Operations Committee to obtain the committee's endorsement of the five candidate transfer hub locations recommended by the consulting team for further study.

On October 7, 2013, Crikelair met with the Board of Directors of the Downtown Bangor Partnership to discuss the transfer sites currently under consideration.

On December 16, 2013, Crikelair met with Bangor's Government Operations Committee to present conceptual sketches for five alternative transit hub locations. The committee agreed with Crikelair's suggestion that further analysis focus on alternatives for Pickering Square and the Airport Mall. The manager of Key Bank Plaza addressed the committee at the end of the meeting. She said that she objected to any plan that would move buses closer to her building. A City Council member asked if a transit hub could fit on the site adjacent to the parking garage that is currently occupied by the Key Bank drive through facility.

# Chapter 5: Overview of Transit Design Concepts

This chapter provides a brief overview of service design concepts for small urban transit systems. It explains why hub-and-spoke systems are usually the preferred design strategy for small cities like Bangor. It goes on to describe variations and alternatives, and considers whether these design concepts might have some relevance for Bangor's regional transit system.

The chapter includes six sections:



## 5.1 Hub and Spoke Systems

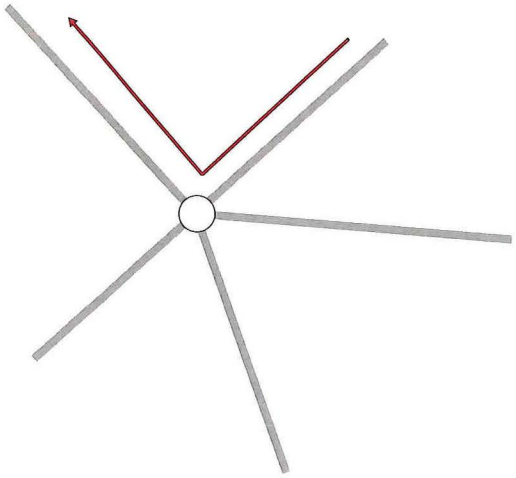
Small cities often utilize a hub-and-spoke design for their transit systems. With a hub-and-spoke system, multiple bus routes converge on a central downtown location. Schedules are usually designed so that buses meet at the downtown hub, remain there together briefly, and then depart together. This approach allows cities to link multiple origin and destination pairs, while operating a minimum number of buses, thereby minimizing operating costs.

Small cities utilize this approach because they typically do not have enough population, ridership demand, or financial resources to operate frequent service on multiple cross-town routes. With a hub-and-spoke system, people who live in neighborhoods that are served infrequently can end up with timed connections to all other destinations served by the transit system.

The main disadvantage of a hub-and-spoke system is that it results in some bus rides that may be indirect and time consuming. This is especially true for travel between locations on adjacent "spokes," because people end up having to travel all the way to and from the city center. A hub-and-spoke system can also result in a large concentration of buses in the downtown center.

Transit hubs are typically located in downtown centers. This is done in part because this approach typically matches the geography of the city. It also creates transfer opportunities that minimize travel time and distance for most passengers. At the same time, the downtown center is usually an important destination for many transit users.

## Hub and Spoke



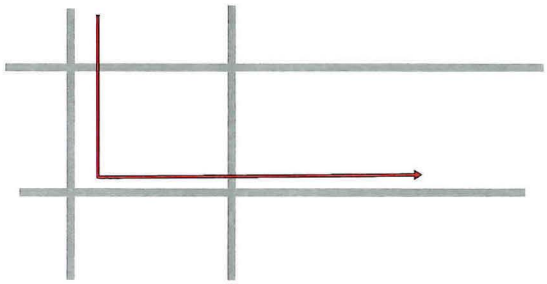
It should be noted, however, that facilitating transfers and serving a central city destination are different goals. There is no obvious need for people to switch buses in the heart of the city center, provided that buses provide center-city stops on their way to and from the transfer site. This suggests that Bangor's transfer hub could perhaps be shifted to the south side of Union Street or to the north side of the Kenduskeag Stream, if designated downtown stops are added for buses passing through the city center.

### 5.2 Grid Systems

Grid systems are usually the preferred approach in large, heavily populated urban areas. They allow transfers to occur anywhere that two routes happen to cross, without the need for special transfer facilities and without requiring buses to arrive and depart at the same time. The key factor that allows grid systems to work is service frequency. If buses on all routes operate every 15 minutes, then riders are not going to be confronted with long delays, even if timetables are not synchronized.

The main drawback with grid systems is that they are expensive to operate. Cities like Bangor don't have enough transit users to justify the investment needed for frequent service on multiple cross-town routes.

## Grid System

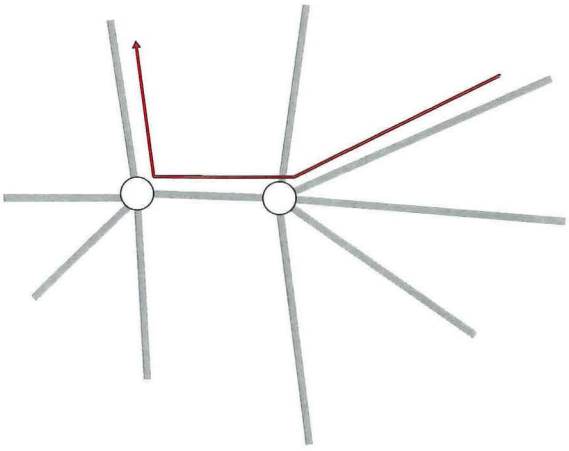


### 5.3 Dual Hubs

A small city transit system can operate with two downtown hubs. Consider, for example, the *citylink* system in Lewiston-Auburn. Prior to 2002, all Lewiston-Auburn buses met at a single hub in downtown Lewiston. A second Auburn hub was added in 2002, after it became apparent that many Auburn residents were traveling through downtown Lewiston to reach shopping mall locations located on the Auburn side of the Androscoggin River.

When the second hub was introduced, a new downtown shuttle was added to provide easy and convenient access between the two downtown centers. At least one Auburn route serves both hub locations, providing an Auburn residential neighborhood with convenient access to both city centers.

## Dual Hubs



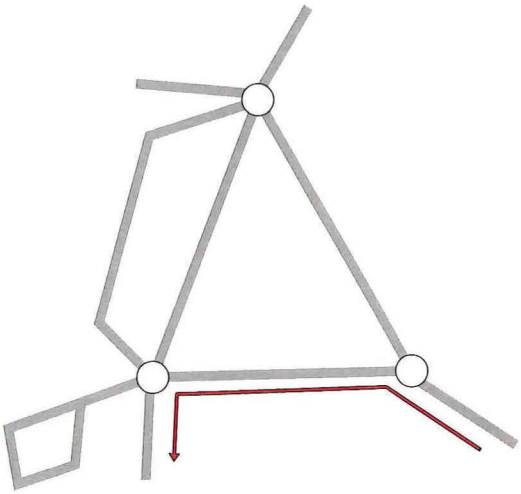
The main factor in selecting a dual hub option is geography. While hubs could be created in Bangor and in Brewer, this would make little sense, because there is currently no central hub transfer activity between Brewer's two bus routes. One reason for this is that, unlike Auburn, both Brewer buses provide service to the city's key shopping plaza destinations.

## 5.4 Multiple Hubs

Sometimes the geography of a region creates a need for multiple transfer hubs. A good example is Advance Transit in the Upper Connecticut River Valley. Advance Transit serves communities on both sides of the river, in New Hampshire and in Vermont. Advance Transit has a triangular transit system with three major transit hubs. Routes are carefully timed to facilitate transfers between buses at all three locations.

The Advance Transit system design reflects the location of Dartmouth College at the northern tip of the triangle, the city of Lebanon at the southeast corner, and shopping mall complexes at the southwest corner.

# Multiple Hubs



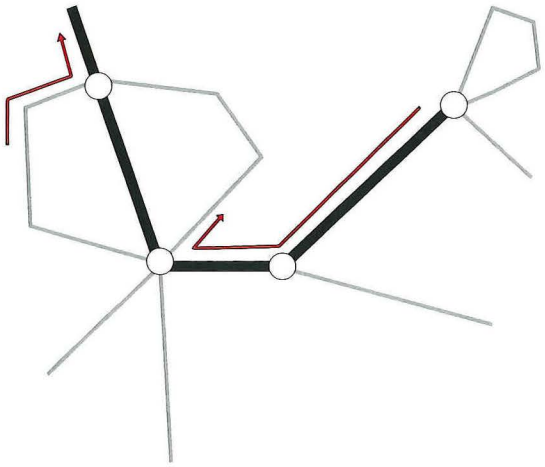
Despite the fact that most Bangor transfers take place in downtown Bangor, the system does utilize some outlying hubs. The Mall Hopper links the Capehart route, the Center Street route, and the Stillwater Avenue route. The Brewer North and Brewer South buses both serve the Brewer Shopping Center and Walmart. The Stillwater Avenue and Mount Hope buses both serve the Bangor Mall. And University of Maine students can transfer between the Old Town route and the Black Bear Orono Express at the Memorial Union and in downtown Orono. Most Odlin Road passengers transfer to and from the Hammond Street route at University College.

It may be possible to expand the use of outlying links and transfer sites, particularly in the neighborhood of the Airport and the Airport Mall. Routes that could benefit from improved outlying links include Capehart, Hammond Street, Center Street, and the Husson College segment of the Mall Hopper route.

## 5.5 Trunk Line Systems

While the Bangor region may not have enough demand or resources to justify frequent service on all routes, it may be possible to offer frequent service on a single "trunk line" route, with less-frequent connecting service at various transfer hubs.

If service on the trunk line route operates every 15 minutes, there may be limited need for multiple buses to converge on a central transfer hub at the same time. This is most likely to be true if most transfers involve travel that begins or ends on the trunk line route. Interlining secondary route buses can minimize the need for timed transfers between secondary routes. Requiring passengers to use three buses to complete a trip should be avoided if at all possible.




The best candidates for trunk line service appear to be Airport Mall-downtown Bangor-Orono or Airport Mall-downtown Bangor-Bangor Mall. It may be appropriate to extend trunk line service beyond the Airport Mall to Capehart. A good candidate for secondary interlined service appears to be a combined Hammond Street-Center Street service that includes the Husson College segment of the Mall Hopper route. Buses on this combined route would operate in both clockwise and counter-clockwise directions.

## 5.6 Interlining Buses

As indicated in the previous section, one strategy for limiting the need for timed transfers is to operate buses that begin on one route and then continue on another route after serving a transfer hub, a practice known as interlining. The resulting service can be better for some riders, because it allows them to avoid switching buses. And it can be more efficient, because it can reduce the need for layovers and delays at transfer sites.

# Chapter 6: Preliminary Review of Candidate Sites

This chapter considers sixteen alternatives for a future Bangor transit hub. It addresses candidate locations for both primary and secondary transfer hubs. The various sites are assessed in terms of their ability to meet a list of sixteen preliminary criteria and goals. This initial screening effort is designed to yield a short list of preferred sites that will be analyzed in greater detail in Chapter 7.

The chapter includes six sections:



## 6.1 List of Candidate Sites

The consultants attempted to identify all reasonable choices. Candidate sites were selected by walking through the downtown area, by reviewing GIS maps of city-owned property, by studying the Community Connector system map in conjunction with aerial photographs available from Google Maps, and by walking through various outlying neighborhoods.

Inclusion on the preliminary list does not mean that a site is a "good" candidate or an "affordable" option. The goal for this stage of the planning process was to assemble as broad a list as possible, and to rely on the screening process to sort out and identify the preferred alternatives. In carrying out this preliminary screening, the consultants did not consider whether there are potential competing and preferred uses for particular properties.

The consultants identified four strategies that would keep the Community Connector transfer hub at or near Pickering Square.

1. Continue with the current bus stop configuration.
2. Reduce the number of buses and change the use of Pickering Square driveways.
3. Reduce the number of buses and move them to Water Street.
4. Create new a bus facility behind the parking garage in Kenduskeag Plaza.

The consultants identified seven candidate sites in or adjacent to downtown Bangor.

5. Exchange Street between York and Hancock Streets
6. Exchange Street parking lot
7. Summer Street
8. Railroad Street
9. Old police station
10. State and Central Streets
11. Penobscot Plaza

**CANDIDATE SITES IN DOWNTOWN BANGOR**

The consultants considered five outlying locations that could be used as transit hubs.

12. Airport property at Maine Avenue and Godfrey Boulevard
13. Airport Mall
14. Bangor Mall
15. Roundhouse Property near Main Street and I-395
16. Downtown Brewer

## 6.2 Criteria and Goals for Preliminary Screening

The consultants utilized sixteen criteria to screen potential sites. They recognized that no single site is likely to meet all of the identified project goals.

- Easy bus access and egress
- No need to create new downtown bus stops
- Easy pedestrian access to downtown senior apartments
- Publicly owned land
- Low capital cost
- Minimal increase in transit operating costs
- Central location
- Off-street location
- Opens potential Pickering Square storefronts
- Opens Pickering Square pathways
- Provides shorter bus rides
- Preserves existing parking
- Matches current rider patterns
- Ensures pedestrian safety
- Avoids repayment of FTA funds
- Has potential as an intercity bus terminal

## 6.3 Options for Pickering Square

The consultants considered four strategies for Pickering Square.

*1. Continue with the current Pickering Square bus stop configuration*

The first option assumes that some improvements will be made at Pickering Square, but that the number of connecting buses will remain the same, and that buses will continue to use the existing driveways and pedestrian islands in front of the parking garage. Anticipated improvements include:

- Redesigned pathways and crosswalks
- Improved landscaping for the center of Pickering Square
- Upgraded waiting room and restroom facilities
- Introduction of quieter buses, as funding becomes available
- Development of the space underneath the parking garage for use by shops and restaurants

This approach ensures continuity of service for current bus riders. However, it fails to address many of the concerns about the design and utilization of Pickering Square. Conflicts between pedestrian, bus, and auto traffic would remain. The continued presence

of large buses in front of the parking garage will limit the appeal of the adjacent parking garage space for retail businesses.

*2. Reduce the number of buses and change the use of Pickering Square driveways.*

This option assumes that the number of buses that converge on Pickering Square would be reduced to no more than four buses at one time. This could be accomplished by scheduling some buses to depart fifteen minutes before and after the hour, and by scheduling other buses to depart on the hour and half-hour. The timing of bus departures would need to be done carefully in order to minimize transfer times and to limit the number of bus riders impacted by longer transfers.

With a smaller concentration of buses, it should be possible to change the use of driveways at Pickering Square. This would include moving the bus loading area away from the empty space beneath the parking garage. It will be necessary to preserve a way for cars to enter the parking garage. This may require retaining the driveway next to the garage for automobiles only.

Option two would include the enhancements anticipated for the first Pickering Square alternative. In addition to transfer delays for many bus riders, the main drawbacks are that buses would continue to line up within the square, that parking garage patrons would continue to walk across and through bus loading areas, and that the center of the square would continue to be an isolated space, surrounded by paved roadways. Opportunities for widening the sidewalks in front of potential commercial sites will be limited because the access roadways will need to continue to accommodate turning buses.

*3. Reduce the number of buses and move them to Water Street.*

Option three involves reducing the number of buses to no more than five at any one time, and shifting the bus stop location to Water Street. Three buses could pick up and drop off passengers on the Pickering Square side of the street, while two buses could stop on the bank side of the street. Buses that enter via Broad Street would exit onto Main Street. Buses that enter via Main Street would exit onto Broad Street.

This arrangement would require creation of a wide and well-marked pedestrian crossing, preferably with distinct pavers to alert motorists to pedestrian activity.

This option would remove buses entirely from the interior of Pickering Square. It would eliminate the need for the circular roadway, because buses would no longer reverse direction at the transfer site. Pathways and the layout of the entire square would be redesigned to accommodate a range of uses, including improved pedestrian access to and from the parking garage. Merchants Plaza near Water Street could be made two-way to provide access to the parking garage entrance. These changes would allow driveways in front of the parking garage to be removed and sidewalks in front of the garage to be widened to facilitate and encourage pedestrian access to future shops and restaurants.

This approach would remove the barrier created by buses and bus traffic within the public square. It would create new public activity on the Water Street side of the square, a side that is currently bordered by a bank parking lot.

Bus passengers would continue to utilize public restrooms located under the parking garage. These facilities could be enhanced to benefit visitors to a revitalized Pickering Square, including bus riders. It may be possible to design a shelter on the Pickering Square side of Water Street to protect bus riders and other park visitors from the rain and sun.

Assuming that the number of buses can be reduced without harming existing commuters, the main drawback to loading buses on Water Street is that some passengers may need to cross the street to transfer between buses. This can be minimized by interlining buses and by routing vehicles so that most transfers take place between vehicles that are stopped on the same side of the road. Alternatively, it may be possible to create a turnout within Pickering Square parallel to Water Street. This would limit buses to just the Pickering Square side of Water Street.

*4. Create new bus facilities behind the parking garage in Kenduskeag Plaza.*

A new bus transfer site could be developed in Kenduskeag Plaza behind the parking garage. This would require the elimination of a line of parking spaces along Kenduskeag Stream.

Bus access and egress are major obstacles for this approach. Access is an issue, because there is no left turn lane for buses heading north on Washington Street. Egress is a bigger problem, because large transit buses should not be routed across the bridge to Hancock and York Streets. Instead, all buses would need to exit by passing through Pickering Square. This would likely require construction of a new roadway ramp next to the parking garage, through what is now a privately owned parking lot. Bus movements would be time-consuming, because buses would use this ramp in a single file. And buses would once again end up traveling through the middle of Pickering Square.

Another drawback to Kenduskeag Plaza is the lack of convenient pedestrian access between the front and back of the parking garage. While the Kenduskeag Plaza site is near to the current Pickering Square site, there is no short and convenient pathway between the two locations. This will create access problems for people walking to and from various downtown locations, including the Freese's building. Moving to Kenduskeag Plaza is also likely to require the construction of new restroom and waiting facilities for bus riders.

Another disadvantage is that the Kenduskeag Plaza site is even more isolated than the existing Pickering Square location. Real and perceived problems with security are likely to result.

## 6.4 Other Downtown Locations

*5. Exchange Street between Hancock and York Streets*

Community Connector buses could meet on Exchange Street, between Hancock and York Streets. Curbside bus stops would be needed on both sides of Exchange Street. This would require the elimination of curbside parking in front of Exchange Street banks.

As with the previous two options, this would require interlining buses and reducing the number of buses to no more than five at one time. Buses that approach Exchange Street from Water and Washington Streets would exit via State Street or Harlow Street. Buses that arrive from State Street would exit via Washington Street. Note that there is no easy and direct way to get an inbound bus from Center Street to Exchange Street.

This approach would likely require the creation of new curbside bus stops on Water Street, so that residents of downtown senior citizen apartment buildings are not required to walk to Exchange Street.

There is no adjacent city-owned land for a passenger shelter and public restrooms. These would need to be developed on privately owned property. It is unknown whether adjacent landowners would be willing to consider allowing their land to be used for this purpose.

The major drawbacks to Exchange Street include elimination of curbside parking, the need for bus riders to cross the street for some transfers, difficult inbound access from Center Street, and the cost to develop new passenger waiting facilities.

*6. Exchange Street parking lot*

A city-owned parking lot at the corner of Exchange Street and York Street could be converted to a Community Connector transit hub. This is one of the only publicly owned parcels in downtown Bangor that is large enough to accommodate the region's fleet of transit buses. This would likely require eliminating most of the 93 regular parking spaces in this lot across the street from the county courthouse.

Like the previous option, this location is within walking distance of the downtown center for most people, but this will not be true for everyone. New bus stops would likely be needed on Water Street to accommodate seniors who live in the Freese's building and other downtown residents.

Bus access and egress may be challenging, in part because York Street is one-way. Buses exiting onto York Street would need to cross multiple lanes in order to turn right onto Exchange Street. This will likely mean that all buses will need to exit directly onto Exchange Street.

Utilizing Exchange Street will add time to the Hampden, Hammond Street, and Capehart route schedules. In particular, this would require reconfiguring the Hammond Street

route. The Hammond Street bus has barely enough time to make it to Pickering Square to meet connecting buses. Extending this route to Exchange Street will likely require adding another ten minutes to the schedule window.

It may prove difficult to interline Center Street and Hammond Street buses at an Exchange Street hub, because there is no easy and direct way to get an inbound Center Street bus from Center Street to Exchange Street. Also, this option will likely require construction of new waiting room and restroom facilities.

*7. Summer Street*

A Community Connector transit hub could be developed on a privately owned parcel of land bordered by Summer Street, Railroad Street, and Main Street. This former car dealership site is currently vacant.

Buses would enter and exit the site via Summer Street. Existing turning lanes and traffic signals at Main and Cedar Streets and at Main and Railroad Streets would aid arriving and departing buses. The portion of the lot along Main Street could be redesigned as a public space, with new retaining walls and pedestrian access from Main Street.

The Summer Street location would allow the transit system to keep the efficiencies of its hub-and-spoke system, while shifting transfer activity away from the center of downtown. The proposed site would be highly visible. Security would be enhanced by the fact that it is located across the street from the fire department and just a few doors from the police station. The bus depot would be reasonably close to the waterfront park, but far enough away to avoid mixing and confusing bus riders with park users.

Extending routes beyond downtown to Summer Street would add time to the Center Street, Stillwater, Mount Hope, and Old Town routes. It would also likely add time to the Capehart route, since Capehart buses would likely need to be routed through downtown via Hammond Street. The alternative would be to route Capehart buses directly to the Summer Street terminal, requiring Capehart riders to transfer in order to reach the downtown center.

Most buses would pass through downtown Bangor on their way to and from a Summer Street depot. The Summer Street option would require the creation of new accessible bus stops somewhere in the downtown center.

Since it is located relatively near to Interstate 395, the Summer Street location might be a candidate for an intercity bus terminal. It appears unlikely, however, that the former car dealership lot is large enough to provide a sufficient number of parking spaces to accommodate intercity travelers.

It is unknown whether the owners of the Summer Street lot would be interested in selling the land in question, or at what cost.

*8. Railroad Street*

Curbside bus loading areas could be developed along both sides of Railroad Street. This could be accomplished with minimal cost. However, bus access and egress is a problem. Buses that turn onto Railroad Street from Main Street would need a way to reverse direction to exit this location, or they would need to exit via Front Street, a roadway that cannot accommodate multiple large transit buses. Moreover, buses that attempt to exit from Railroad Street to Main Street would be delayed by the stop sign at Summer Street and a steady stream of cars turning from Main Street to Summer Street.

*9. Old police station*

The main advantage of the old police station site is the fact that it is owned by the city. However, it has serious access and egress issues. Part of the problem is the site's hillside location, which will make it difficult to serve with large transit buses. In addition, buses from throughout the region would be required to deviate up Hammond and Court Streets to reach this location. This will add unproductive travel time for buses and bus riders, while increasing operating costs and creating congestion on Court Street.

*10. State and Central Streets*

The transit system could be redesigned to once again focus transfer activity on State Street, on Central Street, or on a combination of the two. This would eliminate multiple parking spaces in the downtown center. It would result in large transit buses lining up and waiting for 5-10 minutes at a time on these busy downtown streets. If buses return to State Street, the lack of passenger shelter and restroom facilities would once again become an issue.

*11. Penobscot Plaza*

Some community members have suggested that a Bangor transit depot could be located at Penobscot Plaza, the site of Bangor's former train station. This parcel is located north of Kenduskeag Stream, between Washington Street and the Penobscot River. It is the home of a privately owned shopping plaza. It is unknown what plans the property owner has for the future of this site.

While the plaza is adjacent to the downtown center, it probably located too far away for most people to comfortably walk to Main Street, West Market Square, City Hall, or the Bangor Public Library. A bus depot at this location would likely require the addition of a frequent downtown circulator bus to facilitate movement to and from various downtown locations.

The plaza entrance and exit is aligned with Exchange Street. Egress from the site is aided by the presence of the traffic signal at Washington and Exchange Streets.

Intercity bus operators are unlikely to be interested in a terminal at this location, because it is located too far away from the interstate highway system and would require coaches to spend too much time traveling through local city streets. Of course, this situation could change if and when passenger rail service is restored to Bangor, and if the site once again become home to a train station.

The biggest obstacles for Penobscot Plaza are (1) its distance from the downtown center, (2) the fact that it is currently occupied by a variety of commercial tenants, and (3) the unknown cost of acquiring or utilizing this privately owned and taxable property.

## 6.5 Outlying Sites

*12. Airport property at Maine Avenue and Godfrey Boulevard*

Some community members have suggested that the Community Connector transfer hub be moved to "somewhere out near the airport." Others have suggested that the region needs a new intercity bus terminal, and that this could be located "near the airport." Bangor's economic development staff has pointed out that the city owns a large tract of former Air Force base land bordered by Maine Avenue and Godfrey Boulevard.

At the June 27 public workshop, a Community Connector passenger suggested adding a transfer link between the Capehart and Hammond Street routes in the vicinity of the airport.

The airport site has good potential as an intercity bus terminal, and some potential as a secondary transfer hub. It cannot serve as a primary hub to replace Pickering Square. The Pickering Square transfer hub is not a destination, and it is not a bus station. For transferring passengers, it is simply an intermediate point that they must pass through to complete their bus ride. The most important test for a primary transfer hub site is whether it is located on the preferred travel routes connecting important origin-destination pairs.

Most Bangor residences are located in neighborhoods that surround the downtown core. As a result, the shortest route between neighborhoods is often through the downtown center. Important destinations in the region include the University of Maine and the Bangor Mall. Is it reasonable to expect Bangor residents to travel to Orono by heading first to a facility near the airport? Can bus routes linking residential neighborhoods with the Bangor Mall be routed via the Godfrey Boulevard site? This site would result in trips for most passengers that are indirect, time consuming, and unnecessarily expensive to operate.

A site near the airport offers better potential as a secondary hub. Such a facility could allow some riders to reach destinations near the airport without traveling through downtown. Nearby destinations include the Airport Mall, the Department of Human Services, Bangor International Airport, the Community Connector office, University College, Penobscot Health Care, Alpha One, and the Concord Coach Union Street bus terminal. It may be possible to redesign Community Connector bus routes around a

Godfrey Boulevard hub to facilitate travel to these locations from neighborhoods along Hammond Street, Union Street, and Ohio Street, as well as from Capehart and Husson College.

Godfrey Boulevard has significant potential as a site for a new intercity bus terminal. This facility could serve Concord Coach and Greyhound. It would provide adequate space for long-term parking to accommodate future growth in intercity bus travel. Because it would also serve as a local transit hub, it would be fully integrated into the region's transportation system. This assumes that a shuttle route would link the new bus facility with the airport terminal.

An important question will be whether federal transportation funding will be available to help pay for a new Bangor transportation terminal. An example in New England of this type of public investment is the intercity bus terminal in Concord, New Hampshire, a facility used by Concord Coach and Greyhound.

*13. Airport Mall*

Construction of a transit terminal on Godfrey Boulevard may not be justified unless an intercity bus terminal is included. Considerations include the expected level of use, the cost to design and construct a new facility, and lost opportunities to use this city-owned property for other purposes.

It should be remembered that a Godfrey Boulevard facility would not be a destination for most local bus riders (although it might be within walking distance of the DHS building). Without an intercity terminal, it might make more sense, if possible, to locate this outlying hub at an existing transit destination. One candidate that is both popular and centrally located is the Airport Mall. If multiple routes can meet here, this would mean fewer transfers for Airport Mall shoppers.

The challenge will be to design a site that allows easy access and egress for buses traveling in different directions. If multiple buses experience delays getting in and out of a transfer site, this will likely result in higher operating costs for the system as a whole, and less frequent service on some routes.

It may be possible to design a small Airport Mall hub by taking advantage of a driveway entrance on Griffin Road, and utilizing space along the Union Street side of the Hannaford building.

*14. Bangor Mall*

The Bangor Mall currently serves as an outlying transfer site. Buses that stop at this location include Stillwater Avenue, the Mall Hopper, and Mount Hope. Bus service in the mall area could be redesigned to offer transfers between a local mall circulator and one or more trunk line routes. However, this arrangement would have limited impact on transfer activity in downtown Bangor, unless Old Town buses are routed via the Bangor Mall.

Routing Old Town buses via the Bangor Mall would result in longer and more time-consuming rides for most Community Connector riders traveling to and from Orono and Old Town.

*15. Roundhouse Property near Main Street and I-395*

The city owns a parcel of land bordered by I-395, Main Street, and the Penobscot River. This former railroad roundhouse property would provide easy access to and from the interstate for intercity buses. But the roundhouse site is not a likely candidate for a local transit hub.

The property is located at an end of town where transit use is limited. Extending multiple routes to south Main Street would result in higher operating costs and unproductive overlapping service. In addition, the signalized intersection at Main Street and Dutton Street can handle one or two buses, but not four or five. Exiting buses would likely need to wait for two or more traffic signal cycles.

*16. Downtown Brewer*

A Brewer transfer hub would result in higher operating costs and lower service quality. It would mean longer bus rides for nearly all transferring bus riders, and shorter rides for virtually no one. The recent analysis of Community Connector transfer activity found zero transfers in downtown Bangor between Brewer North and Brewer South buses. Such transfers are not necessary because both Brewer routes serve shopping center locations on Wilson Street.

If Hammond Street and Center Street buses utilized a transit hub in downtown Brewer, Bangor residents traveling from an origin on one route to a destination on the other would be required to cross the Penobscot River twice to complete a one-way ride.

## PRELIMINARY SCREENING SCORES

| | Easy bus access and egress | No need for downtown bus stops | Easy walks to downtown senior apartments | Publicly-owned land | Low capital cost | Limited increase in operating costs | Central location | Off-street location | Opens Pickering Square store fronts | Opens Pickering Square pathways | Provides shorter bus rides | Preserves existing parking | Matches current rider patterns | Ensures pedestrian safety | Avoids repayment of FTA funds | Intercity bus terminal potential | TOTAL SCORE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Current Pickering Square driveways | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -2 | -2 | 0 | 1 | 1 | -1 | 1 | 0 | **6** |
| Current location, fewer buses | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -1 | -1 | 0 | 1 | 1 | 0 | 1 | 0 | **9** |
| Pickering Square @ Water Street | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -1 | 2 | 2 | 0 | -1 | 1 | -1 | 1 | 0 | **10** |
| Kenduskeag Plaza | -1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | -1 | 1 | 0 | -1 | 0 | **2** |
| Exchange Street, curbside | -1 | -1 | -1 | 1 | 1 | 1 | 1 | -1 | 2 | 2 | 0 | -2 | 1 | -1 | -1 | 0 | **1** |
| Exchange Street, parking lot | -1 | -1 | -1 | 1 | -1 | 1 | 1 | 1 | 2 | 2 | 0 | -2 | 1 | 1 | -1 | 0 | **3** |
| Summer Street | 1 | -1 | 0 | -1 | -1 | 1 | 0 | 1 | 2 | 2 | 0 | 1 | 1 | 1 | -1 | 1 | **7** |
| Railroad Street | -2 | -1 | -1 | 1 | 1 | 0 | 0 | -1 | 2 | 2 | -1 | -1 | -1 | -1 | -1 | 0 | **-4** |
| State & Central Streets | -1 | -1 | 1 | 1 | -1 | 1 | 1 | -1 | 2 | 2 | 0 | -2 | 1 | -1 | -1 | 0 | **1** |
| Old Police Station | -2 | -1 | -1 | 1 | -1 | 0 | -1 | 1 | 2 | 2 | -1 | 1 | -2 | 1 | -1 | 0 | **-2** |
| Penobscot Plaza | 1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | 2 | 2 | 0 | -1 | 1 | 1 | -1 | 0 | **0** |
| Airport without downtown hub | 1 | -1 | -1 | 1 | -1 | -1 | -1 | 1 | 2 | 2 | -2 | 1 | -2 | 1 | -1 | 2 | **1** |
| Airport with Water Street hub | 1 | 1 | 1 | 1 | -1 | 1 | 1 | -1 | 2 | 2 | 1 | -1 | 1 | -1 | 1 | 2 | **11** |
| Airport Mall with Water Street hub | 0 | 1 | 1 | 0 | 0 | 1 | 1 | -1 | 2 | 2 | 1 | -1 | 1 | -1 | 1 | 0 | **8** |
| Roundhouse property | -2 | -1 | -1 | 1 | -1 | -1 | -1 | 1 | 2 | 2 | -1 | 1 | -2 | 1 | -1 | 2 | **-1** |
| Downtown Brewer | -1 | -1 | -1 | 0 | 0 | -1 | -1 | 0 | 2 | 2 | -2 | 0 | -2 | 0 | -1 | 0 | **-6** |

## 6.6 Preliminary Screening Results

This section presents the results of a preliminary screening of potential transfer sites. The screening process involved assigning points to a candidate site according to whether it makes a positive or negative contribution toward meeting each of the criteria and goals listed in Section 6.2. Typically, sites were assigned one point for a positive contribution, a negative point for a negative contribution, or zero points for no net change. In a few instances, sites were assigned plus two or minus two. This was done for sites that do a particularly good or poor job in meeting a particular goal. Some sites received zero points for individual criteria when the impact was unknown.

The resulting scores are not weighted or calibrated to reflect detailed strengths and weaknesses. The scoring is designed simply to identify sites that have evident potential to meet the city's goals. More detailed analysis of the preferred candidates will be provided in Chapter 7.

The preliminary screening suggests five strategies for more detailed consideration:

1. Keep buses at Pickering Square, but reduce the number, and move them away from the travel lane in front of the parking garage.
2. Keep buses at Pickering Square, but reduce the number, and move them to Water Street. Redesign Pickering Square driveways and pathways.
3. Same as option two, but include a transit hub at or near the Airport Mall.
4. Same as option two, but include a combined transit hub and intercity bus facility on Maine Avenue.
5. Develop a new transit hub on Summer Street.

# Chapter 7: Detailed Analysis of Five Alternatives

This chapter provides detailed analysis of five alternative transit hub design strategies for the Community Connector transit system. The chapter describes how each transfer hub concept would impact bus routes, bus stops, transfers, schedules, and service frequency. It also provides a preliminary estimate of transit operating costs. Each approach seeks to reduce the negative impacts of transit operations on Pickering Square. Alternative strategies are designed to enhance the downtown public space, while preserving and improving the transit program.

The chapter includes six sections:



## 7.1 Remove Buses from the Parking Garage Entrance Lane

The situation at Pickering Square could be improved somewhat by reducing the number of buses and by removing buses from the travel lane in front of the parking garage. The remaining bus lane can accommodate no more than four buses at the same time.

Because buses would continue to reverse direction by traveling through the square, this approach should require no changes in how buses are routed through the downtown center. Likewise, there should be no need for new designated downtown bus stops, and little or no impact on transit operating costs. This change would, however, result in transfer delays for many Community Connector passengers. Groups impacted will include Bangor residents traveling to and from the University of Maine.

Buses would no longer interfere with cars entering the parking garage, and they would no longer block potential retail space underneath the parking garage. But paved driveways would continue to encircle Pickering Square, and pedestrians would continue to cross traffic lanes and bus loading areas when exiting and entering the parking garage.

*Impacts on Individual Routes*

Currently, seven buses meet at Pickering Square at fifteen minutes past each hour. The timing of three of these buses could be changed so they depart fifteen minutes earlier. To minimize transfer delays, buses that operate hourly could be moved to the top of the hour, while buses that run every thirty minutes could continue to depart at fifteen minutes past the hour. This minimizes transfer layover times by keeping most departure times no more than fifteen minutes apart.

Currently, five buses meet at Pickering Square at forty-five minutes past each hour. To reduce this number to just four buses, the Brewer South bus would need to depart Pickering Square at thirty minutes past the hour. This would leave four buses with a 45-minute-past-the-hour departure: Hammond Street, Capehart, Center Street, and Stillwater Avenue. The distribution of downtown departures would be as follows:

- Hampden, Brewer North, and Old Town would depart at the top of the hour.
- Hammond Street, Capehart, Center Street, and Mount Hope would depart at fifteen minutes past the hour.
- Brewer South would depart at thirty minutes past the hour.
- Hammond Street, Capehart, Center Street, and Stillwater Avenue would depart at forty-five minutes past the hour.

This change will result in travel delays for people transferring between 30-minute buses and 60-minute buses. Since most buses arrive downtown approximately ten minutes before their scheduled departure times, Bangor residents traveling to and from the University of Maine could end up waiting up to twenty-five minutes at the downtown hub.

If possible, individual timetables should be adjusted to reduce scheduled layover time at the downtown hub. This should be done carefully, because transfer hub layovers are what allow bus drivers to depart on time following delays caused by traffic congestion and the extra time required for wheelchair passengers.

If Old Town buses are shifted to the top of the hour, this will result in fifteen-minute Old Town connections with one Brewer bus, and forty-five minute Old Town connections with the other Brewer bus. The best solution for this situation would be for municipal and University partners to fund one additional bus that would operate between downtown Bangor and the University of Maine, at least during peak commuting hours.

A less expensive approach would be to reverse the times that Brewer buses depart downtown Bangor in the afternoon, moving Brewer North from the top of the hour to thirty minutes past the hour. This would preserve 15-minute connections for Brewer North passengers heading to the University in the morning, and 15-minute connections for Brewer North passengers traveling from Orono to Brewer in the afternoon.

## 7.2 Move Buses to Water Street

If the number of buses that meet at Pickering Square can be reduced to no more than five at a time, it should be possible to move the Pickering Square bus hub to Water Street. Three buses could wait on the Pickering Square side of Water Street, while two buses could wait on the Key Bank side of Water Street.

Alternatively, it may be possible to design a turnout within the square, parallel to Water Street, to accommodate two buses that approach the depot from Main Street. This would eliminate the need for buses to stop on the Key Bank side of Water Street, thus avoiding a situation where transferring bus riders are required to cross Water Street.

Moving buses to Water Street would allow a complete redesign of Pickering Square, because it would eliminate the need for the paved driveways that now encircle the public space. Automobile access to the parking garage could be moved to Merchants Way. Improved pathways could be designed for people walking between the parking garage and Main Street, and for people walking between West Market Square and the Bangor waterfront.

Utilizing Water Street for bus transfers will require interlining some bus route pairs, because there would no longer be room for buses to reverse direction at Pickering Square. The best approach appears to be to combine Hammond Street and Center Street routes, and to interline Capehart buses with Stillwater Avenue and Mount Hope.

To preserve direct transfers between Old Town buses and Bangor routes that operate every thirty minutes, Old Town buses would depart the depot at fifteen minutes past the hour. Hampden and Brewer North buses would depart at the top of the hour, while Brewer South would depart at thirty minutes past the hour.

This will give passengers from Hampden and Brewer 15-minute connections with Old Town buses in one direction, and 45-minute connections with Old Town buses in the opposite direction. The best way to avoid this 45-minute transfer would be for municipal and University partners to fund one additional bus that would operate between downtown Bangor and the University of Maine. This additional bus would depart Water Street at forty-five minutes past the hour, preserving Old Town connections of no more than fifteen minutes for all routes.

*Impacts on Individual Routes*

### Hampden

| | |
|---|---|
| Routing | The Hampden bus would approach Water Street from Main Street. It would depart via Broad Street, Independent Street, Summer Street, and Cedar Street. |
| Transfers | Hampden riders would have 15-minute connections with Hammond Street, Capehart, and Center Street buses. They would have 15-minute connections with Old Town, Stillwater Avenue, and Mount Hope buses in one direction, and 45-minute connections with these routes in the opposite direction. They would have direct connections with Brewer North, and 30-minute connections with Brewer South. |
| Bus Stops | Bus stops would need to be designed and constructed along Water Street. |
| Timing | Downtown departures would be shifted to the top of the hour. Time intervals between stops along the route would remain unchanged. |
| Impacts | A move to Water Street will have a negative impact on Hampden riders traveling to and from the University of Maine. The possible addition of an extra Old Town bus would minimize that impact by ensuring that Hampden and Old Town departures are no more than 15 minutes apart in both directions. |

### Hammond Street and Center Street

| | |
|---|---|
| Routing | Arriving Hammond Street buses would depart as Center Street buses. Arriving Center Street buses would depart as Hammond Street buses. An arriving Hammond Street bus would travel via Cedar Street, Summer Street, Independent Street, and Broad Street. It would depart as a Center Street bus by traveling from Water Street to Main Street, State Street, and Harlow Street. An arriving Center Street bus would travel from Central Street to Main Street and then turn left on Water Street. It would depart as a Hammond Street bus via Broad Street, Independent Street, Summer Street, and Cedar Street. |
| Transfers | Hammond Street and Center Street riders would have direct connections with Capehart, Stillwater Avenue, Mount Hope, and Old Town. They would have 15-minute connections with Brewer North, Brewer South, and Hampden buses. |
| Bus Stops | Bus stops would need to be designed and constructed along Water Street. |
| Timing | The best approach would be to combine these two routes with the Husson University segment of the Mall Hopper route. Moving the Mall Hopper bus to this new route and adding one bus will result in 30-minute headways. Two buses would operate in a clockwise direction, and two buses would operate in a counterclockwise direction. Hourly service could be provided with just two buses, one clockwise and one counterclockwise. |
| Impacts | A move to Water Street will result in fifteen-minute connections with Brewer North, Brewer South, and Hampden buses. A combined route that includes Husson University will result in improved single-bus access for many riders, along with a reduction in downtown transfer activity. |

### Capehart, Stillwater Avenue, and Mount Hope

| | |
|---|---|
| Routing | Capehart buses would be interlined with Stillwater Avenue and Mount Hope buses. Arriving Capehart buses would travel Hammond Street and Main Street to Water Street. They would depart using Broad Street, Washington Street, Exchange Street, and State Street. Buses arriving from Stillwater Avenue and Mount Hope would use Washington Street, Broad Street, and Water Street. They would depart as Capehart buses via Water Street, Main Street, and Union Street. |
| Transfers | Capehart buses would have direct connections with Hammond Street, Center Street, Stillwater Avenue, Mount Hope, and Old Town. They would have fifteen-minute connections with Hampden, Brewer North, and Brewer South. The situation would be similar for Stillwater Avenue and Mount Hope. |

| | |
|---|---|
| Bus Stops | Bus stops would need to be designed and constructed along Water Street. |
| Timing | Schedules for Capehart, Stillwater Avenue, and Mount Hope routes could remain essentially unchanged. A Water Street hub might save one or two minutes for each route, because buses would no longer circle through Pickering Square. |
| Impacts | A move to Water Street will result in fifteen-minute connections with Brewer North, Brewer South, and Hampden buses. Interlining Capehart service with Stillwater Avenue and Mount Hope would result in fewer transfers in downtown Bangor, because people using these routes could remain on their bus. |

### Old Town

| | |
|---|---|
| Routing | Inbound buses would approach Water Street via Washington Street and Broad Street. Outbound buses would travel from Main Street to State Street. |
| Transfers | Old Town passengers would have direct transfers with Hammond Street, Capehart, Center Street, and Mount Hope. They would have 15-minute connections with Hampden, Brewer North, and Brewer South buses in one direction, and 45-minute connections with these buses in the opposite direction. They would have 30-minute connections with Stillwater Avenue, just as they do at the present time. Transfers could be improved by adding a bus that departs Bangor for Orono at 45 minutes past the hour. |
| Bus Stops | Bus stops would need to be designed and constructed along Water Street. |
| Timing | Moving the downtown hub to Water Street should have minimal impact on Old Town timetables. It may be a good idea to shift some of the current downtown layover time to the University of Maine in an effort to shorten the transfer time for people using buses that depart downtown on the hour and half-hour. |
| Impacts | This change will have a negative impact on people from Hampden and Brewer who commute to and from locations on the Old Town route. This could be mitigated if an additional bus departs Bangor for Orono at 45 minutes past the hour. If an extra bus is not added, Hampden and Brewer North departures could be shifted to 30 minutes past the hour in the afternoon. |

### Brewer North and Brewer South

| | |
|---|---|
| Routing | Brewer buses could approach the Water Street transfer hub via Union Street and Main Street. They could depart via Broad Street and Independent Street. |
| Transfers | The Brewer North bus would have a direct transfer with Hampden, and 15-minute transfers with Hammond Street, Capehart, and Center Street. People transferring between Brewer North and Old Town, Mount Hope, and Stillwater Avenue would have a 15-minute connection in one direction and a 45-minute connection in the opposite direction. The Brewer South bus would have 15-minute transfers with Hammond Street, Capehart, and Center Street. People transferring between Brewer South and Old Town, Mount Hope, and Stillwater Avenue would have a 15-minute connection in one direction and a 45-minute connection in the opposite direction. |
| Bus Stops | Bus stops would need to be designed and constructed along Water Street. |
| Timing | A Water Street hub should have no impact on the amount of time required for either Brewer route. |
| Impacts | Most Brewer bus riders would be negatively impacted because they would be required to wait in downtown Bangor to connect with Hammond Street, Capehart, Center Street, Old Town, Stillwater Avenue, and Mount Hope buses. |

## PROPOSED CENTER STREET / HUSSON / HAMMOND STREET TIMETABLES (a.m. times)

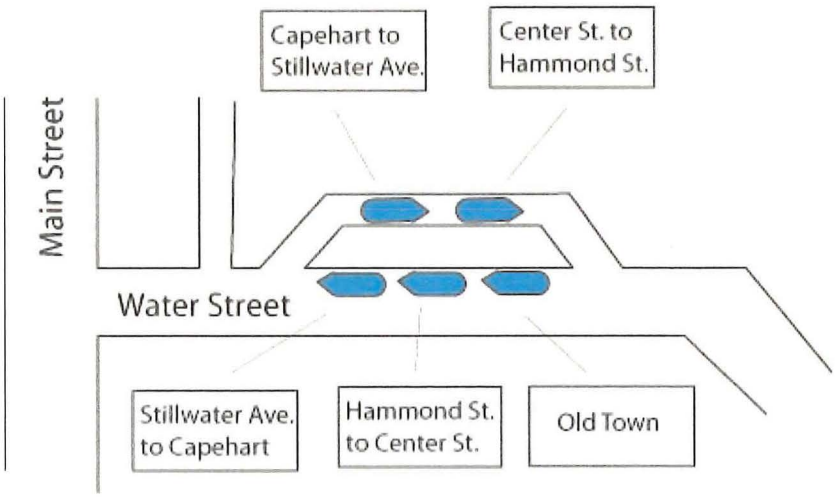
### CENTER STREET TO HAMMOND STREET

| Depot | B'way Shop Ctr | Husson Univ | Airport Mall | Airport Mall | Univ College | Depot |
|---|---|---|---|---|---|---|
| | | | | | 5:55 a | 6:10 a |
| 6:15 a | 6:28 a | 6:33 a | 6:40 a | 6:45 a | 6:55 a | 7:10 a |
| 6:45 a | 6:58 a | 7:03 a | 7:10 a | 7:15 a | 7:25 a | 7:40 a |
| 7:15 a | 7:28 a | 7:33 a | 7:40 a | 7:45 a | 7:55 a | 8:10 a |
| 7:45 a | 7:58 a | 8:03 a | 8:10 a | 8:15 a | 8:25 a | 8:40 a |
| 8:15 a | 8:28 a | 8:33 a | 8:40 a | 8:45 a | 8:55 a | 9:10 a |
| 8:45 a | 8:58 a | 9:03 a | 9:10 a | 9:15 a | 9:25 a | 9:40 a |
| 9:15 a | 9:28 a | 9:33 a | 9:40 a | 9:45 a | 9:55 a | 10:10 a |
| 9:45 a | 9:58 a | 10:03 a | 10:10 a | 10:15 a | 10:25 a | 10:40 a |
| 10:15 a | 10:28 a | 10:33 a | 10:40 a | 10:45 a | 10:55 a | 11:10 a |
| 10:45 a | 10:58 a | 11:03 a | 11:10 a | 11:15 a | 11:25 a | 11:40 a |
| 11:15 a | 11:28 a | 11:33 a | 11:40 a | 11:45 a | 11:55 a | 12:10 p |
| 11:45 a | 11:58 a | 12:03 p | 12:10 p | 12:15 p | 12:25 p | 12:40 p |
| 12:15 p | 12:28 p | 12:33 p | 12:40 p | 12:45 p | 12:55 p | 1:10 p |
| ETC. | | | | | | |

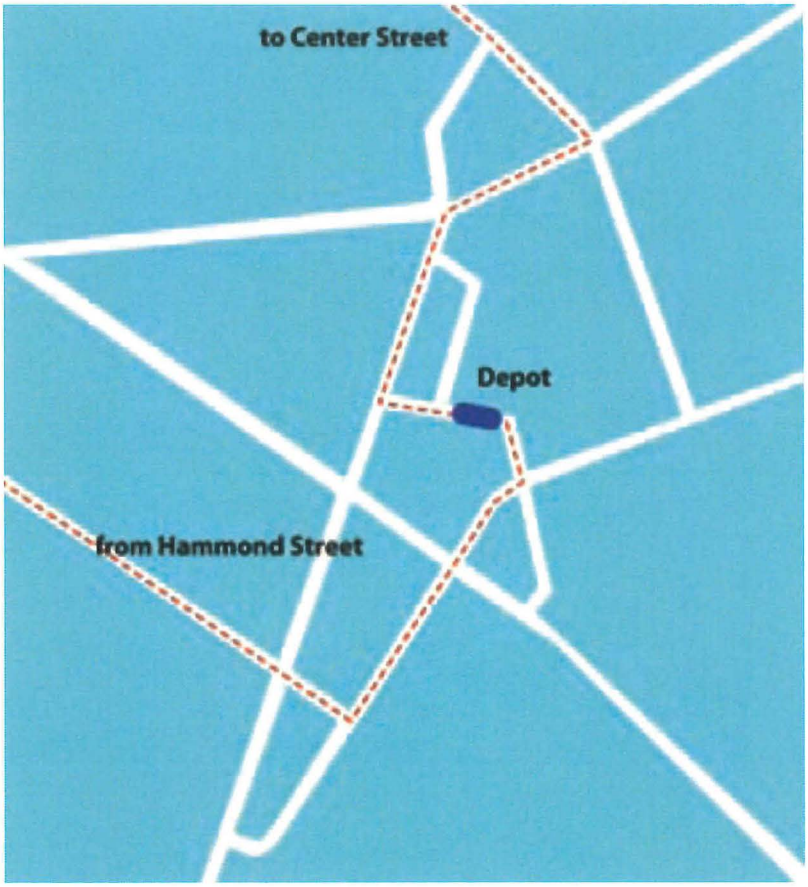
### HAMMOND STREET TO CENTER STREET

| Depot | Univ College | Airport Mall | Airport Mall | Husson Univ | B'way Shop Ctr | Depot |
|---|---|---|---|---|---|---|
| 6:15 a | 6:30 a | 6:40 a | 6:45 a | 6:50 a | 6:55 a | 7:10 a |
| 6:45 a | 7:00 a | 7:10 a | 7:15 a | 7:20 a | 7:25 a | 7:40 a |
| 7:15 a | 7:30 a | 7:40 a | 7:45 a | 7:50 a | 7:55 a | 8:10 a |
| 7:45 a | 8:00 a | 8:10 a | 8:15 a | 8:20 a | 8:25 a | 8:40 a |
| 8:15 a | 8:30 a | 8:40 a | 8:45 a | 8:50 a | 8:55 a | 9:10 a |
| 8:45 a | 9:00 a | 9:10 a | 9:15 a | 9:20 a | 9:25 a | 9:40 a |
| 9:15 a | 9:30 a | 9:40 a | 9:45 a | 9:50 a | 9:55 a | 10:10 a |
| 9:45 a | 10:00 a | 10:10 a | 10:15 a | 10:20 a | 10:25 a | 10:40 a |
| 10:15 a | 10:30 a | 10:40 a | 10:45 a | 10:50 a | 10:55 a | 11:10 a |
| 10:45 a | 11:00 a | 11:10 a | 11:15 a | 11:20 a | 11:25 a | 11:40 a |
| 11:15 a | 11:30 a | 11:40 a | 11:45 a | 11:50 a | 11:55 a | 12:10 p |
| 11:45 a | 12:00 p | 12:10 p | 12:15 p | 12:20 p | 12:25 p | 12:40 p |
| 12:15 p | 12:30 p | 12:40 p | 12:45 p | 12:50 p | 12:55 p | 1:10 p |
| ETC. | | | | | | |

## Water Street Departures at Fifteen Minutes Past the Hour




## HAMMOND STREET TO CENTER STREET VIA WATER STREET TRANSIT HUB



## SAMPLE WATER STREET ARRIVALS, DEPARTURES, AND CONNECTIONS

| Origin | Arrives | Destination | Departs |
|---|---|---|---|
| Hampden | 6:55 a | Hampden | 7:00 a |
| | | Brewer North | 7:00 a |
| Old Town / Orono | 7:05 a | Orono / Old Town | 7:15 a |
| University College / Hammond | 7:10 a | Center Street / Husson | 7:15 a |
| Husson / Center Street | 7:10 a | Hammond / University College | 7:15 a |
| | | Airport Mall / Capehart | 7:15 a |
| Capehart / Airport Mall | 7:10 a | Mount Hope / EMCC | 7:15 a |
| Brewer South | 7:22 a | Brewer South | 7:30 a |
| Mount Hope / EMCC | 7:35 a | Airport Mall / Capehart | 7:45 a |
| University College / Hammond | 7:40 a | Center Street / Husson | 7:45 a |
| Husson / Center Street | 7:40 a | Hammond / University College | 7:45 a |
| Capehart / Airport Mall | 7:40 a | Stillwater / Malls | 7:45 a |
| Brewer North | 7:52 a | Brewer North | 8:00 a |
| Hampden | 7:55 a | Hampden | 8:00 a |
| Malls / Stillwater | 8:05 a | Airport Mall / Capehart | 8:15 a |
| Old Town / Orono | 8:05 a | Orono / Old Town | 8:15 a |
| University College / Hammond | 8:10 a | Center Street / Husson | 8:15 a |
| Husson / Center Street | 8:10 a | Hammond / University College | 8:15 a |
| Capehart / Airport Mall | 8:10 a | Mount Hope / EMCC | 8:15 a |
| Brewer South | 8:22 a | Brewer South | 8:30 a |
| Mount Hope / EMCC | 8:35 a | Airport Mall / Capehart | 8:45 a |
| University College / Hammond | 8:40 a | Center Street / Husson | 8:45 a |
| Husson / Center Street | 8:40 a | Hammond / University College | 8:45 a |
| Capehart / Airport Mall | 8:40 a | Stillwater / Malls | 8:45 a |
| Brewer North | 8:52 a | Brewer North | 9:00 a |
| Hampden | 8:55 a | Hampden | 9:00 a |
| Malls / Stillwater | 9:05 a | Airport Mall / Capehart | 9:15 a |
| Old Town / Orono | 9:05 a | Orono / Old Town | 9:15 a |
| University College / Hammond | 9:10 a | Center Street / Husson | 9:15 a |
| Husson / Center Street | 9:10 a | Hammond / University College | 9:15 a |
| Capehart / Airport Mall | 9:10 a | Mount Hope / EMCC | 9:15 a |
| Brewer South | 9:22 a | Brewer South | 9:30 a |
| Mount Hope / EMCC | 9:35 a | Airport Mall / Capehart | 9:45 a |
| University College / Hammond | 9:40 a | Center Street / Husson | 9:45 a |
| Husson / Center Street | 9:40 a | Hammond / University College | 9:45 a |
| Capehart / Airport Mall | 9:40 a | Stillwater / Malls | 9:45 a |
| Brewer North | 9:52 a | Brewer North | 10:00 a |
| Hampden | 9:55 a | Hampden | 10:00 a |

## 7.3 Develop an Improved Transfer Hub at the Airport Mall

One strategy for linking transit routes near the airport would be to develop a new transfer hub at the Airport Mall. Inbound and outbound Capehart buses would stop here, as would clockwise and counterclockwise Hammond Street / Husson / Center Street buses. A modified Odlin Road route would also begin and end at the Airport Mall.

It is worth noting that an improved bus stop at the Airport Mall is needed now, even if no other changes are made to the Community Connector system. Capehart and Mall Hopper buses currently transfer riders in an outlying section of the mall parking lot, because the mall owners do not want buses blocking the front of Staples, and because there is not enough room in front of Hannaford for more than one bus at a time.

An Airport Mall hub would need to accommodate at least two buses. Inbound and outbound Capehart buses would stop here near the top of each hour and at half past each hour. Clockwise and counterclockwise Hammond Street / Husson / Center Street buses could serve this location at approximately 15 and 45 minutes past the hour. The Odlin Road bus could drop off passengers at this location at 50 minutes past the hour and then pull away from the bus stop. It would wait until the inbound Capehart bus has departed before returning to the bus stop to pick up passengers heading to the airport or to Odlin Road destinations, to avoid having three buses at the stop at the same time.

Airport Mall owners do not want multiple buses stopping in front of the congested Hannaford / Staples side of the mall property. An alternative would be to develop a bus hub adjacent to one of the mall's entrances on the Griffin Road side of the mall. The preferred choice is the entrance closest to Hannaford. A bus loading zone and passenger shelter could be constructed in an island in the parking lot near the mall entrance. Or bus stop facilities could be developed along the rear of the mall building.

Buses could enter and exit the Airport Mall via Griffin Road, and would then no longer need to maneuver through the congested parking lot on the Hannaford / Staples side of the mall. This should save time for Hammond Street / Husson / Center Street buses, and it may also improve the efficiency of the Capehart route. With this approach, bus riders who shop at Hannaford would be required to walk through the mall building and past Staples to reach the supermarket.

Alternatively, buses could stop at the front of the Hannaford store just before or just after serving a transfer hub located at the rear of the building. This would require the creation of a new bus stop along the side of the Hannaford building, on the Union Street side of the travel lane. Outbound Capehart buses and clockwise Hammond/Husson/Center Street buses would use the current Hannaford stop, before turning right to reach the rear of the building. Inbound Capehart buses and counterclockwise Hammond/Husson/Center Street buses would depart the transfer hub and then travel around the side of the Hannaford store, stopping briefly near the front right corner of the store before turning onto Union Street.

## SAMPLE AIRPORT MALL ARRIVALS, DEPARTURES, AND CONNECTIONS

| Origin | Arrives | Destination | Departs |
|---|---|---|---|
| Capehart | 6:25 a | Pickering Square | 6:25 a |
| Pickering Square | 6:30 a | Capehart | 6:30 a |
| Center Street / Husson | 6:40 a | Univ College / Hammond St. | 6:45 a |
| Hammond St / Univ College | 6:40 a | Husson / Center Street | 6:45 a |
| Capehart | 6:55 a | Pickering Square | 6:55 a |
| Pickering Square | 7:00 a | Capehart | 7:00 a |
| Center Street / Husson | 7:10 a | Univ College / Hammond St. | 7:15 a |
| Hammond St / Univ College | 7:10 a | Husson / Center Street | 7:15 a |
| Capehart | 7:25 a | Pickering Square | 7:25 a |
| Pickering Square | 7:30 a | Capehart | 7:30 a |
| Center Street / Husson | 7:40 a | Univ College / Hammond St. | 7:45 a |
| Hammond St / Univ College | 7:40 a | Husson / Center Street | 7:45 a |
| Capehart | 7:55 a | Pickering Square | 7:55 a |
| Pickering Square | 8:00 a | Capehart | 8:00 a |
| Center Street / Husson | 8:10 a | Univ College / Hammond St. | 8:15 a |
| Hammond St / Univ College | 8:10 a | Husson / Center Street | 8:15 a |
| Capehart | 8:25 a | Pickering Square | 8:25 a |
| Pickering Square | 8:30 a | Capehart | 8:30 a |
| Center Street / Husson | 8:40 a | Univ College / Hammond St. | 8:45 a |
| Hammond St / Univ College | 8:40 a | Husson / Center Street | 8:45 a |
| Capehart | 8:55 a | Pickering Square | 8:55 a |
| Pickering Square | 9:00 a | Capehart | 9:00 a |
| Center Street / Husson | 9:10 a | Univ College / Hammond St. | 9:15 a |
| Hammond St / Univ College | 9:10 a | Husson / Center Street | 9:15 a |
| Capehart | 9:25 a | Pickering Square | 9:25 a |
| Pickering Square | 9:30 a | Capehart | 9:30 a |
| Center Street / Husson | 9:40 a | Univ College / Hammond St. | 9:45 a |
| Hammond St / Univ College | 9:40 a | Husson / Center Street | 9:45 a |
| Capehart | 9:55 a | Pickering Square | 9:55 a |
| Pickering Square | 10:00 a | Capehart | 10:00 a |
| Center Street / Husson | 10:10 a | Univ College / Hammond St. | 10:15 a |
| Hammond St / Univ College | 10:10 a | Husson / Center Street | 10:15 a |
| Capehart | 10:25 a | Pickering Square | 10:25 a |
| Pickering Square | 10:30 a | Capehart | 10:30 a |
| Center Street / Husson | 10:40 a | Univ College / Hammond St. | 10:45 a |
| Hammond St / Univ College | 10:40 a | Husson / Center Street | 10:45 a |
| Capehart | 10:55 a | Pickering Square | 10:55 a |
| Pickering Square | 11:00 a | Capehart | 11:00 a |

There are two service design details that will need to be addressed. (1) Which Community Connector buses will serve the Bangor International Airport? And (2) how will passengers who arrive at the Airport Mall travel to the Eastern Maine Healthcare Mall on Union Street?

The best approach for the airport would be to have Hammond Street / Husson / Center Street buses stop at the airport entrance on each trip in both directions. This would result in 30-minute service and direct access to the airport from multiple Bangor locations, including downtown. However, there may not be enough time in a one-hour schedule window to allow these buses to include a diversion to the airport entrance. One way to address this situation would be to have these buses serve the airport on request only. These might eventually be switched to regular scheduled stops, if time permits.

Alternatively, an airport stop could be added to the Odlin Road route. Odlin Road buses would stop at the airport just after departing the Airport Mall and just before they return to the Airport Mall. However, if the Odlin Road bus serves the airport, then this bus will be an unlikely candidate to provide an Eastern Maine Healthcare link, as described below.

Travel from an Airport Mall transfer hub to the Eastern Maine Healthcare Mall is a problem because there is no easy way for inbound Capehart buses to stop at this location. Because of the time required for buses to turn left into the EMHC site, adding this location to the route of inbound Capehart buses would require the continued operation of a third Capehart bus. A bus stop on Union Street across from the facility is not a solution, because there is no way for pedestrians to safely cross this busy four-lane roadway.

The best strategy is probably to route the outbound Odlin Route bus via the Healthcare Mall. This would give people who get off buses at the Airport Mall direct access to the EMHC site once every hour. Service in the opposite direction, from EMHC to the Airport Mall, would be provided every 30 minutes by outbound Capehart buses.

## 7.4 Develop an Intercity Bus Terminal Near the Airport

An intercity bus terminal could be constructed on city-owned property near the airport. This facility would also serve as an outlying transfer hub for the Community Connector transit system. The facility could be located on the parcel boarded by Godfrey Boulevard and Maine Avenue, across the street from the L.L.Bean call center. Access to the site would be from Maine Avenue.

The primary purpose of this development would be to provide terminal facilities and parking for Concord Coach Lines and Greyhound. It could also provide overflow parking for the Bangor International Airport. The facility should be designed to provide local transit users with improved access to nearby destinations, including:

- Bangor International Airport
- Maine Department of Human Services

- Airport Mall
- Eastern Maine Healthcare Mall
- Penobscot Healthcare
- Alpha One
- Community Connector office
- University College

While the idea of a new intercity bus terminal for Bangor has considerable appeal, there are at least five obstacles that will need to be addressed.

1. While the Federal Transit Administration has helped pay for similar facilities elsewhere in past years, it is unknown whether federal funding will be available for this type of facility now or in the near future.

2. The airport has paid parking, while Concord Coach offers free parking. This difference will need to be addressed, so airline travelers don't decide to park at the new bus terminal. One solution might be charge for parking at the bus terminal, while allowing Concord Coach staff to validate tickets for bus travelers so they can exit the parking lot without paying a fee.

3. If Capehart buses are diverted to a Maine Avenue terminal, three buses will be needed to maintain 30-minute headways along the current Capehart route. Two buses would serve a new "Ohio Street" route, operating between downtown Bangor and the Maine Avenue terminal. A third bus would serve a separate Capehart route, operating between the Maine Avenue terminal and the Capehart housing complex.

4. Improved bus stops at the Airport Mall will still be needed, even if most transfers take place at a new Maine Avenue terminal. Ohio Street buses would likely continue to stop at the Hannaford entrance. A new stop on the Griffin Road side of the Airport Mall would be used by the Capehart bus and by clockwise and counterclockwise Hammond Street / Center Street / Husson University buses.

Community Connector bus routes that would serve a Maine Avenue bus terminal include a new Ohio Street route, a modified Capehart route, a combined Hammond Street / Center Street / Husson University route, and a modified Odlin Road route.

The new Ohio Street route would include the following:

- Buses would travel between Ohio Street and Union Street via 14th Street instead of Westland Street. This change would be made because Hammond Street buses would no longer travel outbound on Union Street.
- After departing the Eastern Maine Healthcare Mall, the Ohio Street bus would stop at the Airport Mall, and then continue to the Maine Avenue terminal.

- After departing the new terminal, the Capehart bus would return to downtown Bangor via Godfrey Boulevard, Union Street, 14th Street, and Ohio Street.

After arriving downtown, Ohio Street buses would interline with the Stillwater Avenue and Mount Hope routes.

The new Capehart route would link the Maine Avenue terminal with Bolling Drive and the Capehart housing complex. It would include outbound and inbound stops at the Griffin Road entrance to the Airport Mall, so that Capehart residents are not required to transfer to reach this shopping destination.

The Odlin Road route would start and end at the Maine Avenue terminal.

As with the other options, Hammond Street / Husson / Center Street would require two buses for hourly service and four buses for 30-minute service. The current service design serves these locations with three buses (one on Hammond Street, one on Center Street, and one on Mall Hopper).

## 7.5 Develop a New Transfer Hub on Summer Street

*Summary of Impacts and Costs*

A Summer Street depot could be constructed on the privately owned parcel boarded by Summer Street, Main Street, and Railroad Street. Buses would gain access to the site from driveway entrances located on Summer Street. Buses can arrive and depart this location via the signalized intersection at Main and Railroad Streets or via the signalized intersection at Main and Cedar Streets. It would also be possible for some buses to arrive and depart via Summer Street, although southbound buses would end up making the equivalent of a left-hand turn to cross Cedar Street.

The key impacts of shifting the transfer hub to Summer Street are summarized here. Detailed discussions of individual routes are provided in the tables that follow.

1. One additional full-time bus would be needed to preserve half-hour headways on the Center Street route. The alternative will be to reduce Center Street service to hourly.
2. Bus stops will be needed on both sides of Main Street near West Market Square.
3. Stillwater Avenue and Mount Hope service at the Bangor malls will need to be streamlined to allow extra time to reach Summer Street.
4. Hampden, Brewer North, and Brewer South riders will need to transfer at Summer Street to reach downtown Bangor.
5. Outbound Capehart passengers who begin their trips in downtown will need to board an inbound Capehart bus on Main Street and then wait at the depot for five to ten minutes before heading outbound.

*Impacts on Individual Routes*

### Hampden

| | |
|---|---|
| Routing | The Hampden bus would travel direct to and from the depot via Main Street and Railroad Street. |
| Transfers | Same as current service: Hampden route riders would have direct transfers to and from all routes except Stillwater Avenue and Brewer South. |
| Bus Stops | No new bus stops would be needed for this route. |
| Timing | Current travel times would be reduced by approximately 4-5 minutes in each direction, for a combined savings of 8-10 minutes. |
| Impacts | Shorter travel time would add some flexibility for adding stops along the Hampden route. But a transfer would be required for Hampden route passengers traveling to and from the downtown center. |

### Hammond Street and Center Street

| | |
|---|---|
| Routing | Routing depends on whether the Hammond Street bus is interlined with Center Street and extended to include the Husson College segment of the Mall Hopper route. If Center Street and Hammond Street routes continue to operate separately, the Hammond Street bus would arrive via Cedar Street and depart via Main Street and Union Street. If Hammond Street is interlined with Center Street, an inbound Hammond Street bus would arrive via Cedar Street and depart as a Center Street bus via Main Street or via Summer Street, Independent Street, and Water Street. In the opposite direction, a Center Street bus would arrive via Main Street or via Water Street, Independent Street, and Summer Street, and then depart as a Hammond Street bus via Cedar Street. |
| Transfers | If Hammond Street is not interlined with Center Street, Hammond Street would operate every 30 minutes, while Center Street would be served hourly. Hammond Street riders would continue to have direct transfers to all routes, while Center Street riders would lose direct connections with Stillwater Avenue and Brewer South.<br>If the Hammond Street route is combined with Center Street and the Husson College segment of the Mall Hopper route, there are two choices: (1) add one bus, preserving half-hour service and direct connections with all routes, or (2) provide hourly service in both directions, with direct transfers with all routes except Stillwater Avenue and Brewer South. |
| Bus Stops | Downtown bus stops will be needed, on Main Street adjacent to West Market Square, and on Water Street adjacent to Pickering Square. |
| Timing | Eliminating service to downtown could save 6-8 minutes of travel time for the Hammond Street bus. Interlining Hammond Street with Center Street would save time on Hammond Street, while adding 8-10 minutes to Center Street. This would require either reducing the frequency of Center Street to hourly, or adding a bus to offer 30-minute service in both directions on a combined Hammond Street / Center Street /Husson College route. |
| Impacts | If Hammond Street is not interlined with Center Street, Hammond Street riders will need to transfer to reach downtown. With interlined service, they would remain on their bus, with a brief layover at the depot. A combined Hammond Street / Center Street /Husson College would provide transfer-free access to and from all neighborhoods along the route. |

## Capehart

| | |
|---|---|
| Routing | There are two options for getting Capehart buses from Ohio Street to a Summer Street depot. Inbound buses could travel from Ohio Street to Hammond and Main Street. Or they could travel from Ohio Street to Union Street and Main Street. If they travel inbound on Union Street, Capehart buses would need to interline with Stillwater Avenue and Mount Hope to preserve one-bus access to and from downtown. |
| Transfers | Capehart service would continue to operate every 30 minutes, preserving direct connections with all routes. |
| Bus Stops | The Hammond Street option would require a new bus stop on Main Street, opposite West Market Square. This might require shifting two handicapped parking spaces a short distance to the south. |
| Timing | The Hammond Street option would add 4-5 minutes to inbound trips. The Union Street option might add 1-2 minutes, as inbound buses wait for the traffic signal at Union Street and Main Street. |
| Impacts | The Hammond Street option would preserve direct inbound access to downtown. People heading outbound toward Capehart could board the inbound bus on Main Street and then wait for five to ten minutes at the depot before continuing outbound. The Union Street alternative would eliminate direct access to downtown. Interlining Capehart buses with Stillwater Avenue and Mount Hope would lessen this impact. |

## Stillwater Avenue and Mount Hope

| | |
|---|---|
| Routing | Inbound buses could approach a Summer Street depot via State Street, Central Street, and Main Street. Or they could utilize Exchange Street, Washington Street, Water Street, and Main Street. Outbound buses would face a similar choice: Main Street and State Street, or Main Street, Water Street, Washington Street, and Exchange Street. The Water Street alternative would be more time consuming, but it avoids a situation where multiple buses might attempt to utilize a Main Street / West Market Square bus stop at the same time. Changes in the configuration of both routes beyond I-95 will be needed to allow extra time to reach a new Summer Street depot. These changes are discussed below. |
| Transfers | Transfers for Stillwater Avenue and Mount Hope would remain essentially the same as they are now. Note that the current arrangement somewhat favors the Mount Hope route by providing it with direct connections with Old Town and Hampden. |
| Bus Stops | Downtown Bangor would be served by bus stops on Main Street, or by bus stops on Water Street. For Main Street, outbound buses could perhaps utilize the space next to West Market Square that is currently designated as a loading zone. This would require creating a new loading zone for West Market Square, perhaps on Broad Street. Inbound buses would use a new stop located just before the two handicapped parking spaces on the opposite side of Main Street. Northbound Old Town buses would also use the West Market Square stop. It may be necessary to send Stillwater Avenue and Mount Hope buses via Water Street to avoid a situation where two buses need to use the West Market Square stop at the same time. |
| Timing | Extending Stillwater Avenue and Mount Hope routes to Summer Street will add 4-5 minutes in each direction, for a combined impact of 8-10 minutes. Both routes would need to be streamlined to allow buses to continue offering reliable service with a 60-minute schedule window. The Stillwater Avenue route could be changed to serve the Bangor Mall in one direction only, either outbound or inbound, but not both. It might also be necessary to eliminate Stillwater Avenue diversions to Ridgewood Drive. The Mount Hope route could be shortened by eliminating on-request diversions to Evergreen Woods, and by having this bus skip the Bangor Mall, routing it instead via Target, Walmart, and K-Mart. (There may be time to divert a revised Mount Hope service to Ridgewood Drive.) |

| | |
|---|---|
| Impacts | Downtown residents would continue to have direct access to and from both routes. For people who board in downtown, the service would be somewhat less convenient, because buses would stop only briefly, and instead of boarding on buses while they wait at the depot, people boarding in downtown will need to wait outdoors at the appropriate bus stop. Also, streamlining service at the malls will impact available shopping choices. For example, Mount Hope passengers would lose direct service to the Bangor Mall, while gaining new service to Walmart. |

### Old Town

| | |
|---|---|
| Routing | Inbound buses would use State, Harlow, Central, and Main Streets. Outbound buses would travel from Main Street to State Street. |
| Transfers | Transfers would remain unchanged from the current service: Old Town riders would have direct transfers to and from all routes except Stillwater Avenue and Brewer South. |
| Bus Stops | Two designated downtown bus stops will be needed, one for inbound buses and one for outbound buses. These should be located adjacent to West Market Square. |
| Timing | Extending the Old Town route to Summer Street will add 4-5 minutes in each direction, for a combined impact of 8-10 minutes. Eliminating the diversion via Exchange and Washington Streets should save 2-3 minutes in each direction, for a combined reduction of 4-6 minutes. This results in a net impact of 4-6 additional minutes. It should be possible to accommodate this change by shortening the route's downtown Bangor layover time. |
| Impacts | Downtown residents would continue to have direct access to and from the Old Town route. For people who board in downtown, the service would be somewhat less convenient, because buses would stop only briefly. Instead of boarding buses while they wait at the depot, people boarding in downtown will need to wait outdoors at a West Market Square bus stop. |

### Brewer North and Brewer South

| | |
|---|---|
| Routing | Brewer buses could approach the Summer Street depot via Union Street, Main Street, and Cedar Street. They could depart via Summer Street and Union Street. Alternatively, inbound buses could use the Union Street bridge and outbound buses could use the Oak Street bridge. Outbound buses could travel via Summer Street, Independent Street, and Washington Street, or via Main Street, Water Street, and Washington Street. Using the Oak Street bridge for outbound trips will allow Brewer passengers to reach downtown Bangor without switching buses. |
| Transfers | Transfers would remain basically the same as current service. One of the Brewer routes would lose direct transfers with Center Street if the Center Street route switches to hourly service. |
| Bus Stops | People heading to downtown Bangor may want to get off the bus at Union and Main Streets, but the closest location for a stop is just south of May Street, only one block from the Summer Street depot. If outbound buses use the Oak Street bridge, then new bus stops will be needed either at Washington and Front Streets or on Water Street. |
| Timing | If outbound buses use Summer Street and Washington Street to reach the Oak Street bridge, this will likely add several minutes to the Brewer South schedule. There will be delays for both routes if they travel via Water Street, because of a need to wait for Main Street traffic signals at Cedar Street, Union Street, and Water Street. |
| Impacts | To provide sufficient time for reliable service along these routes, it may be necessary to use the Union Street bridge in both directions. This will mean that Brewer bus riders will need to transfer at the Summer Street depot for trips to and from Bangor's downtown center. |

## 7.6 Transit Operating Cost Projections

Operating cost projections assume that the Capehart and Odlin Road routes that were operating in the fall of 2013 will be reconfigured, as described in Appendix A. This change will result in two full-time buses on the Capehart route and one full-time bus on the Odlin Road route, for a net redction of 3.4 service hours per day.

All of the transit hub concepts anticipate the addition of an extra bus between downtown Bangor and the University of Maine bus during peak commuter hours to reduce overcrowding and to preserve connections for University of Maine students and employees. Local costs for expanded Old Town bus service would be covered by Veazie, Orono, Old Town, and the University of Maine. If the partners can make additional funds available, hours for the extra afternoon bus could be extended to include new evening service between Bangor and the University of Maine.

Combining a Water Street downtown hub with an outlying hub at the Airport Mall would require the addition of one full-time bus funded by the City of Bangor. This extra bus is needed to maintain 30-minute service in both directions for Hammond Street, Husson University, and Center Street.

Combining a Water Street downtown hub with an intercity bus terminal near the airport would require the addition of two full-time Bangor buses. One would be needed to maintain 30-minute service linking Capehart, the Airport Mall, and downtown Bangor. Another bus would be needed to maintain 30 minute service for Hammond Street, Husson University, and Center Street.

Moving the downtown hub to Summer Street would require the addition of one Bangor bus to preserve 30-minute headways on the Center Street route. This would result in 30-minute service in both directions on a combined Hammond Street, Husson University, and Center Street route. Husson University is currently served once an hour.

**PROJECTED NET INCREASE IN FULL-TIME BUSES**

| | Current System Design | Improved Odlin Road | Four Downtown Buses | Water Street | Water Street & Airport Mall | Water Street & Airport Bus Terminal | Summer Street |
|---|---|---|---|---|---|---|---|
| Bangor | 0 | -0.2 | -0.2 | -0.2 | 0.8 | 1.8 | 0.8 |
| Brewer | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VOOT | 0 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Hampden | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **NET CHANGE** | **0** | **-0.2** | **0.3** | **0.3** | **1.3** | **2.3** | **1.3** |

## PROJECTED REQUIREMENTS FOR FULL-TIME BUSES

| | Current System Design | Current Design with Improved Odlin Road | Four Downtown Buses | Water Street | Water Street & Airport Mall | Water Street & Airport Bus Terminal | Summer Street | NOTES |
|---|---|---|---|---|---|---|---|---|
| Capehart | 2.6 | 2 | 2 | 2 | 2 | 3 | 2 | (a) |
| Hammond Street | 1 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Mall Hopper | 1 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Center Street | 1 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Hammond / Husson / Center | 0 | 0 | 0 | 0 | 4 | 4 | 4 | (b) |
| Stillwater Avenue | 1 | 1 | 1 | 1 | 1 | 1 | 1 | (c) |
| Mount Hope | 1 | 1 | 1 | 1 | 1 | 1 | 1 | (d) |
| Old Town | 2 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | (e) |
| Brewer North | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Brewer South | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Hampden | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Odlin Road | 0.6 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **TOTAL** | **13.2** | **13** | **13.5** | **13.5** | **14.5** | **15.5** | **14.5** | |
| | | | | | | | | |
| Bangor | 8.2 | 8 | 8 | 8 | 9 | 10 | 9 | |
| Brewer | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| VOOT | 2 | 2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | |
| Hampden | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **TOTAL** | **13.2** | **13** | **13.5** | **13.5** | **14.5** | **15.5** | **14.5** | |

NOTES:

(a) With a new intercity bus terminal, a third Capehart bus would be needed because of the time required to serve this location.

(b) Four Hammond/Husson/Center Street buses will preserve 30-minute headways.

(c) For Summer Street, Stillwater Avenue would need to be streamlined to preserve 60-minute service.

(d) For Summer Street, Mount Hope would need to be streamlined to preserve 60-minute service.

(e) An extra Old Town bus would be needed between Bangor and Orono during peak commute hours.

The following discussion uses a unit cost of $42.84 per revenue service hour. This represents the FY 2013 actual direct or avoidable Community Connector cost for driver wages, benefits, fuel, and bus repairs.

The direct or avoidable cost of operating a weekday Community Connector bus 12 hours a day and 250 days a year is approximately $128,520 per year. If Federal Transit Administration subsidies will be available to cover half of this cost, the annual local cost for each additional full-time bus will be roughly $64,260.

**PROJECTED LOCAL OPERATING COST INCREASES WITH 50% FTA SUBSIDY**

| | Current System Design | Improved Odlin Road | Four Downtown Buses | Water Street | Water Street & Airport Mall | Water Street & Airport Bus Terminal | Summer Street |
|---|---|---|---|---|---|---|---|
| Bangor | 0 | -12,852 | -12,852 | -12,852 | 51,408 | 115,668 | 51,408 |
| Brewer | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VOOT | 0 | 0 | 32,130 | 32,130 | 32,130 | 32,130 | 32,130 |
| Hampden | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **NET CHANGE** | **0** | **-12,852** | **19,278** | **19,278** | **83,538** | **147,798** | **83,538** |

If matching FTA subsidy dollars are available, the analysis suggests that a new Water Street downtown transit hub combined with an outlying hub at the Airport Mall will increase local operating costs by roughly $83,538 per year, with Bangor assuming $51,408 of this cost, and Old Town partners paying the remaining $32,130. A Summer Street terminal is projected to have the same impact on local operating costs. A Water Street hub combined with a new intercity bus terminal near the airport is projected to increase Bangor's share of annual local operating costs by $115,668.

**PROJECTED LOCAL OPERATING COST INCREASES WITHOUT 50% FTA SUBSIDY**

| | Current System Design | Improved Odlin Road | Four Downtown Buses | Water Street | Water Street & Airport Mall | Water Street & Airport Bus Terminal | Summer Street |
|---|---|---|---|---|---|---|---|
| Bangor | 0 | -25,704 | -25,704 | -25,704 | 102,816 | 231,336 | 102,816 |
| Brewer | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| VOOT | 0 | 0 | 64,260 | 64,260 | 64,260 | 64,260 | 64,260 |
| Hampden | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **NET CHANGE** | **0** | **-25,704** | **38,556** | **38,556** | **167,076** | **295,596** | **167,076** |

If additional matching funds are not available from the Federal Transit Administration, a new Water Street downtown transit hub combined with an outlying hub at the Airport Mall will increase local operating costs by roughly $167,076 per year, with Bangor assuming $102,816 of this cost, and Old Town partners paying the remaining $64,260. A Summer Street terminal is projected to have the same impact on local operating costs. A Water Street hub combined with a new intercity bus terminal near the airport is projected to increase Bangor's share of annual local operating costs by $231,336.

# Chapter 8: Preliminary Design Concepts

This chapter presents preliminary design concepts for the alternative transit hub strategies addressed in chapter seven. It includes three conceptual sketches for Pickering Square / Water Street, three for the Airport Mall, one for an intercity bus terminal near the Airport, and one for Summer Street. A final section addresses a possible downtown concept that was suggested by a Bangor City Councilor late in the planning process.

The chapter includes six sections:

Section 8.1 Remove Buses from the Parking Garage Entrance Lane
Section 8.2 Move Buses to Water Street
Section 8.3 Develop an Improved Transfer Hub at the Airport Mall
Section 8.4 Develop an Intercity Bus Terminal Near the Airport
Section 8.5 Develop a New Transfer Hub on Summer Street
Section 8.6 Use Property Adjacent to the Parking Garage on Broad Street

## 8.1 Remove Buses from the Parking Garage Entrance Lane

Reducing the number of buses to four and removing buses from the parking garage entrance lane would require no changes to the existing landscape at Pickering Square.

## 8.2 Move Buses to Water Street

The consultants developed three alternative designs for a Water Street transit hub. The first (Figure 8.1) uses both sides of Water Street without changing the width of Water Street. The second (Figure 8.2) uses both sides of Water Street, but widens Water Street on the Pickering Square side. Both concepts eliminate thirteen parking spaces, while requiring some arriving, departing, and transferring bus passengers to cross Water Street.

A third strategy (Figure 8.3) creates a turnout and pedestrian island on the edge of Pickering Square parallel to Water Street. Three buses traveling from Broad Street to Main Street would stop curbside on Water Street. Two buses traveling from Main Street to Broad Street would utilize the turnout. All arriving, departing, and transferring bus riders would get on and off buses from a shared pedestrian island. An overhead shelter would be added for short-term transfers. Passengers with longer downtown layovers would continue to use the heated wasting room and restrooms adjacent to the parking garage entrance.

## 8.3 Develop an Improved Transfer Hub at the Airport Mall

The consultants developed three conceptual sketches for the Airport Mall. The first (Figure 8.4) involves construction of a bus stop and pedestrian island in the parking lot on the Griffin Road side of the Airport Mall. The second (Figure 8.5) utilizes the access road along the side of the Hannaford building, and adds a loading area for a single bus near the front corner of the building. The third (Figure 8.6) adds space for three additional buses on the Union Street side of the access drive.

The bus hub at the rear of the building could stand alone, or it could be combined with the single-bus stop at the front corner of Hannaford. Adding the single-bus stop near the Hannaford entrance would allow some passengers to get on and off buses closer to the supermarket, while moving all transfer activity to the rear of the mall.

An alternative to a rear transfer hub would be to combine Figures 8.5 and 8.6, adding space for a single bus on the Hannaford side of the access drive and adding space for three buses on the Union Street side of the access drive. This approach is likely to be the most convenient for transit users, because people who shop at Hannaford would not be required to walk through the mall building to reach the transit hub.

The second alternative requires use of the access drive along the side and rear of the Hannaford building. With this approach, it will be important to make sure that delivery trucks do not block the access road. If a transfer hub is located at the rear of the mall, it should be possible for all arriving and departing buses to utilize Griffin Road, without traveling around the side and rear of the Hannaford building.

## 8.4 Develop an Intercity Bus Terminal Near the Airport

Figure 8.7 presents a conceptual sketch for a new intercity bus terminal near the airport. It uses city-owned property on Maine Avenue across from the L.L.Bean call center. The conceptual site plan includes a terminal building, motor coach loading zones, a passenger drop off circle with nearby free short-term parking, gated long-term parking for intercity travelers (including overflow airport parking), and a passenger loading zone for up to six local transit buses. The amount of long-term and overflow parking can be adjusted to match anticipated demand.

## 8.5 Summer Street

The consultants developed a conceptual sketch for a Summer Street transfer hub (Figure 8.8) that will accommodate up to seven Community Connector buses at the same time. The site plan calls for a central island that would include a waiting room / restroom building and adjacent green space. It includes pedestrian access to and from the First Street neighborhood via the crosswalk at Main Street and Railroad Street.

Summer Street is a relatively expensive option because it would require:

- Acquisition of the privately owned property
- Reconstruction of the retaining wall on Main Street
- Engineering and landscaping to address grade changes on the site
- Construction of restrooms and a passenger waiting area

It is also important to note that switching to a Summer Street transit hub will require the construction of handicapped accessible bus stops somewhere adjacent to Bangor's downtown center. The most likely candidate location is Water Street next to Pickering Square. The most likely configurations are presented above in Figures 8.1 and 8.2. The downtown stop will need to accommodate multiple buses at the same time, because buses on different routes will arrive and depart Summer Street at the same time. Widening Water Street may not be necessary, because buses will remain at Water Street bus stops only for as much time as it takes to pick up and discharge passengers.

## 8.6 Use Property Adjacent to the Parking Garage on Broad Street

The city may want to pursue an additional Pickering Square alternative that came to light at the end of the planning process. At the December 16 meeting of the Government Operations Committee, a City Councilor asked if a transit hub could fit on the site next to the parking garage that is currently occupied by a Key Bank drive through facility. The consultants did not consider this location earlier because it is occupied by a private business, and because there has been no indication that it might be made available for use by the city.

The consultants did not contact Key Bank to inquire about this property. They did, however, prepare a preliminary sketch showing that the site could be reconfigured to accommodate up to five transit buses. This would require eliminating some of the parking spaces in the city-owned lot adjacent to Kenduskeag Stream. Two buses would enter the site from Washington Street and exit onto Broad Street. Three buses would enter from Broad Street and exit onto Washington Street. Route and schedule adjustments for this location would be similar to the adjustments required for the Water Street alternative. A preliminary sketch for this concept is provided in Figure 8.8.

The city may be able to help Key Bank find a better downtown site for a drive through facility. Moving the transit hub to Broad Street would preserve transit access in the downtown center, while moving buses away from views and pathways associated with Pickering Square.

The main drawbacks to Broad Street are (1) transfer delays for Hampden and Brewer bus riders, (2) a longer walk between the bus stop and restroom and waiting room facilities, and (3) an exit onto Broad Street that is relatively close to the nearby signaled intersection. Left-hand turns onto Washington Street could be avoided by having Old Town, Stillwater Avenue, and Mount Hope buses exit the site by turning right on Washington Street, followed by a right on Broad Street, before continuing via Water Street, Main Street, and State Street.

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**Figure 8.1 Water Street without Widening**

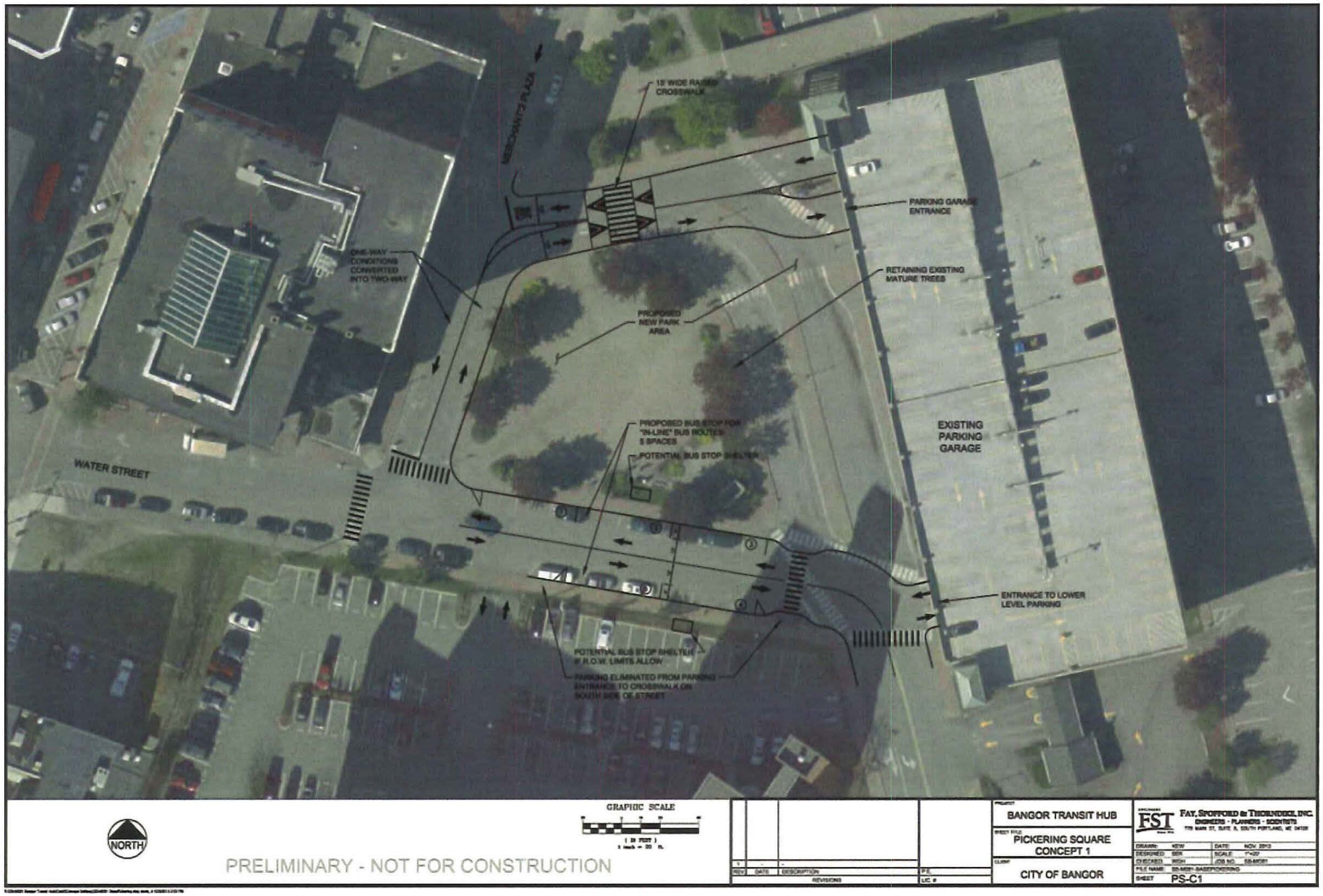


**Figure 8.2 Water Street with Widening**

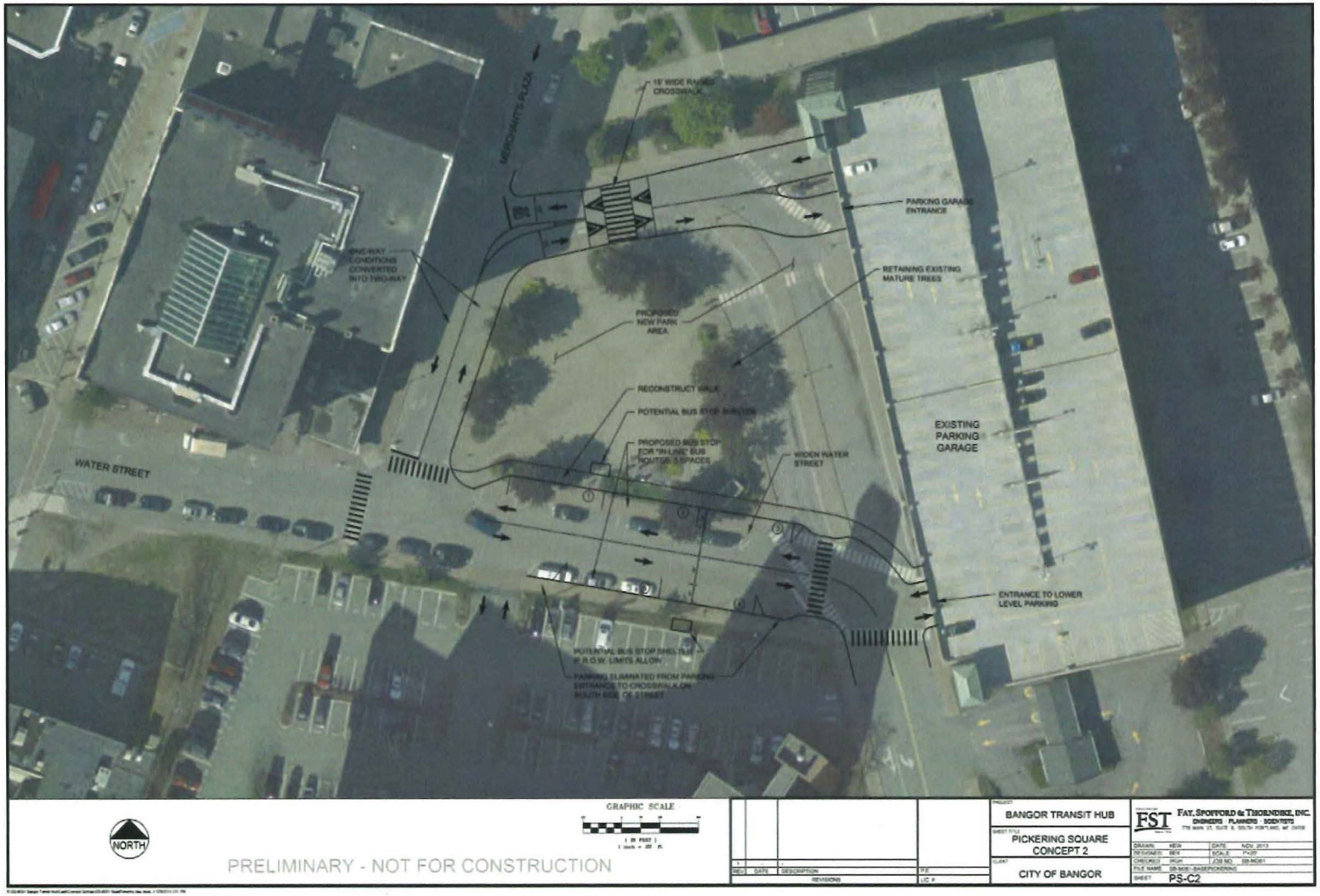


**Figure 8.3 Water Street with Passenger Island**

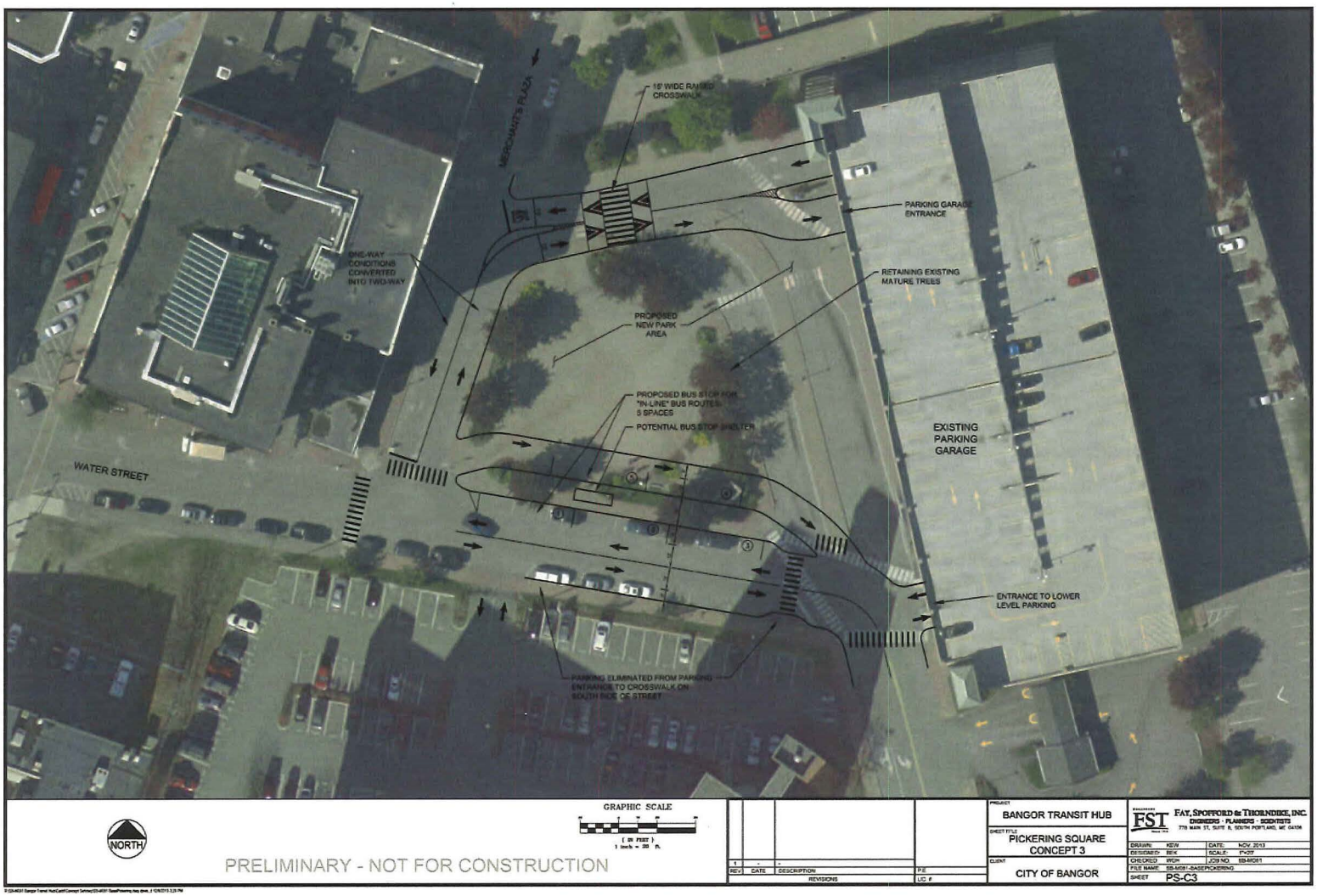


**Figure 8.4 Airport Mall: Rear Transfer Hub**

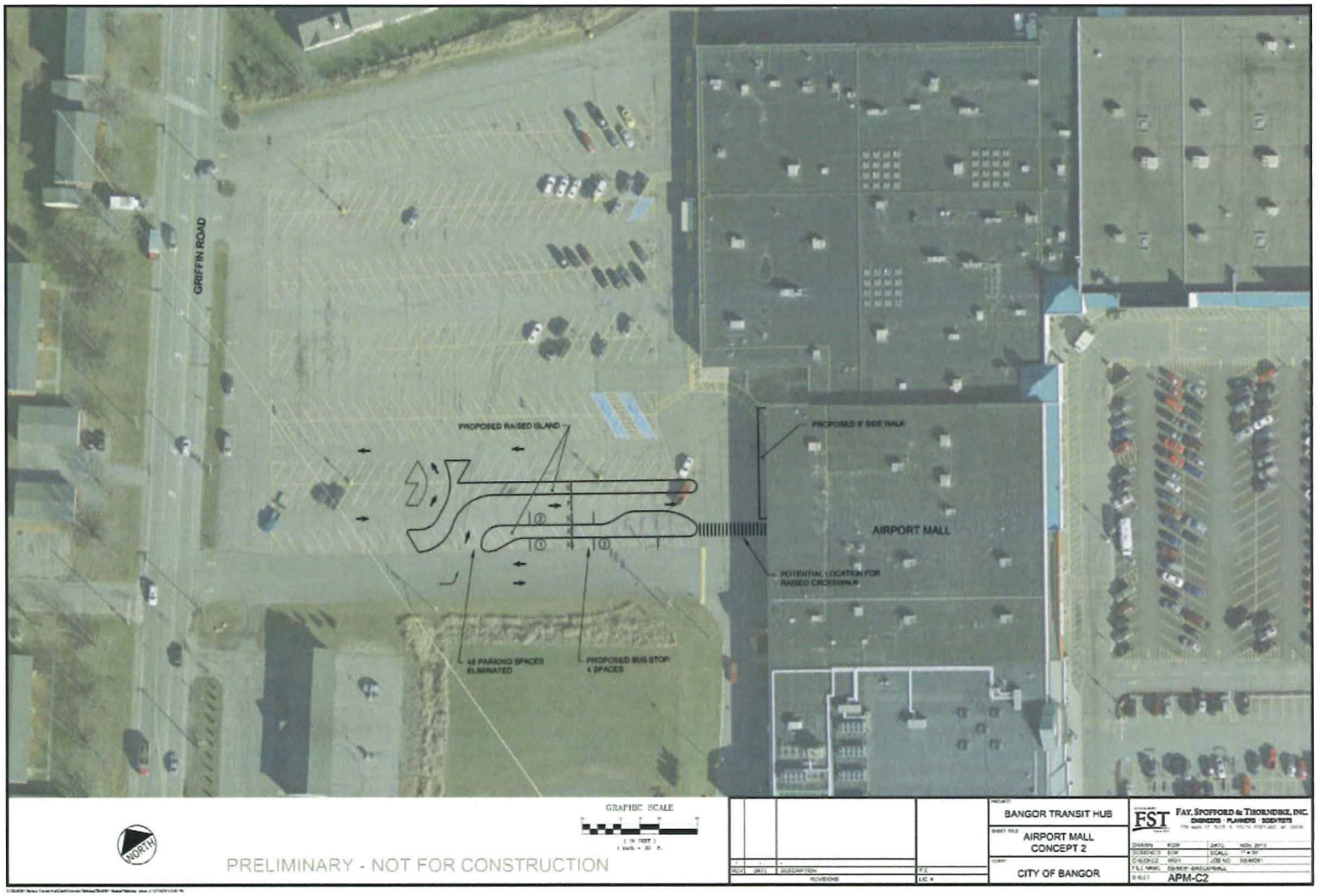


**Figure 8.5 Airport Mall: Single Access Drive Bus Stop**

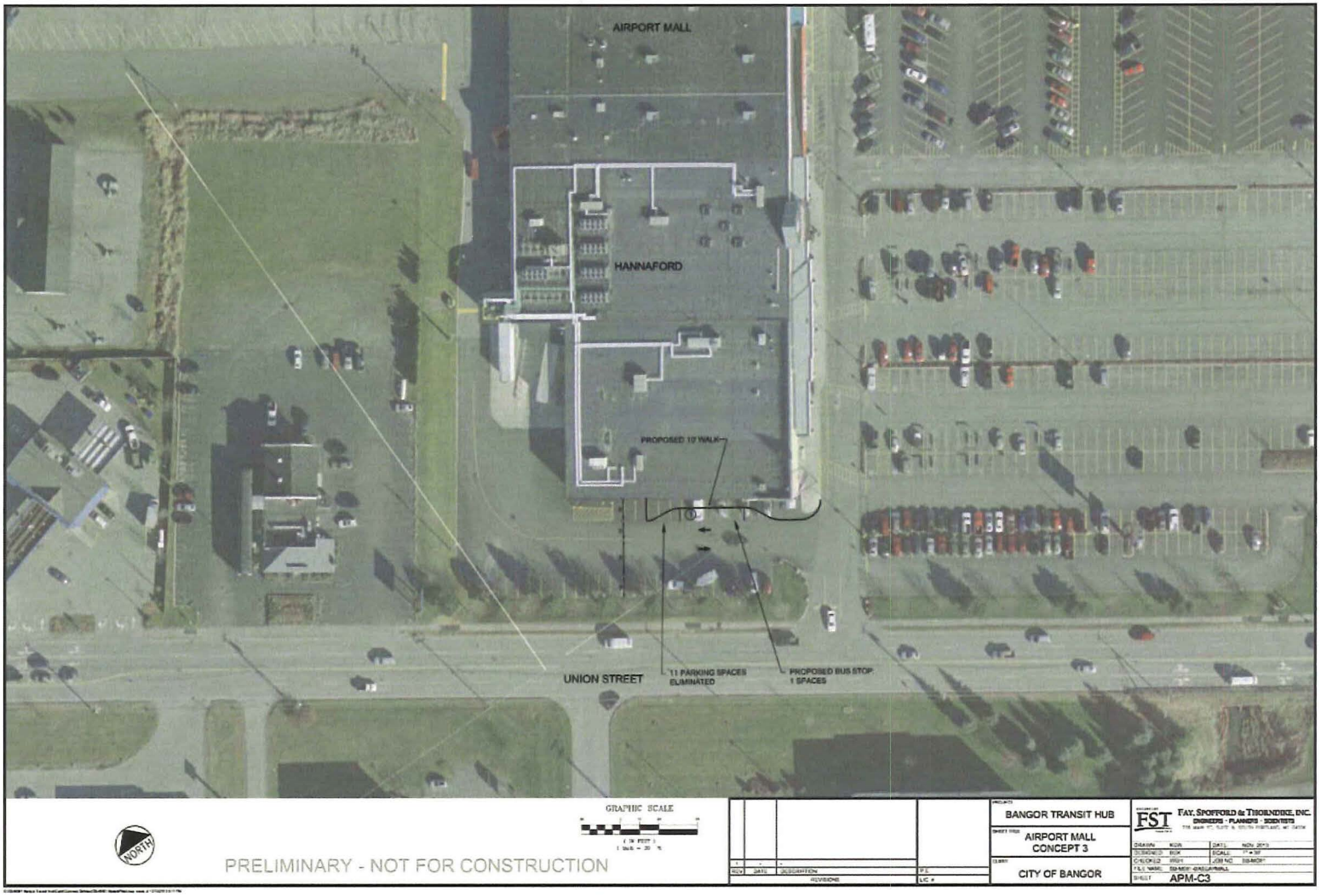


**Figure 8.6 Airport Mall: Three Buses Along Union Street**

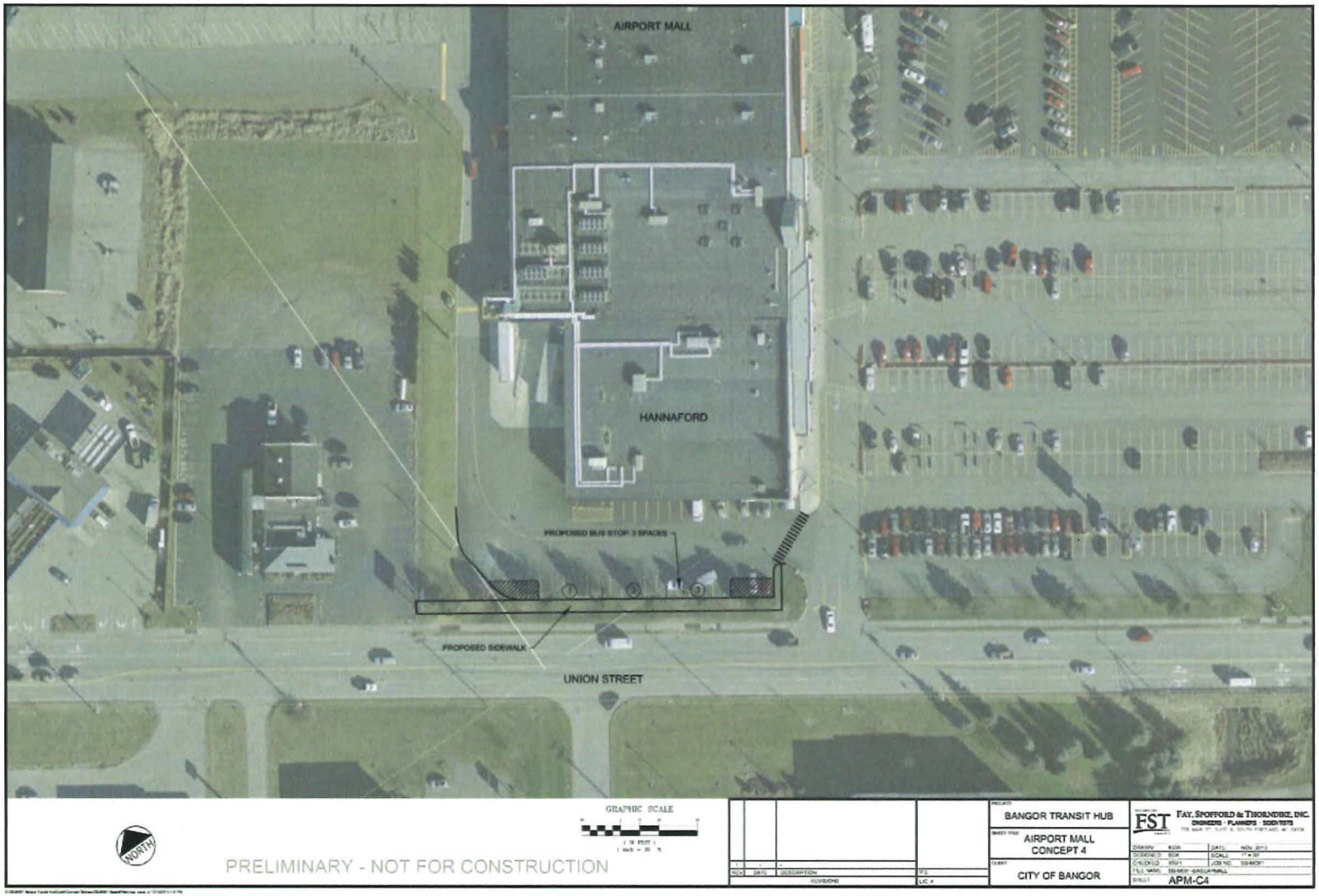


**Figure 8.7 Intercity Bus Terminal Near the Airport**

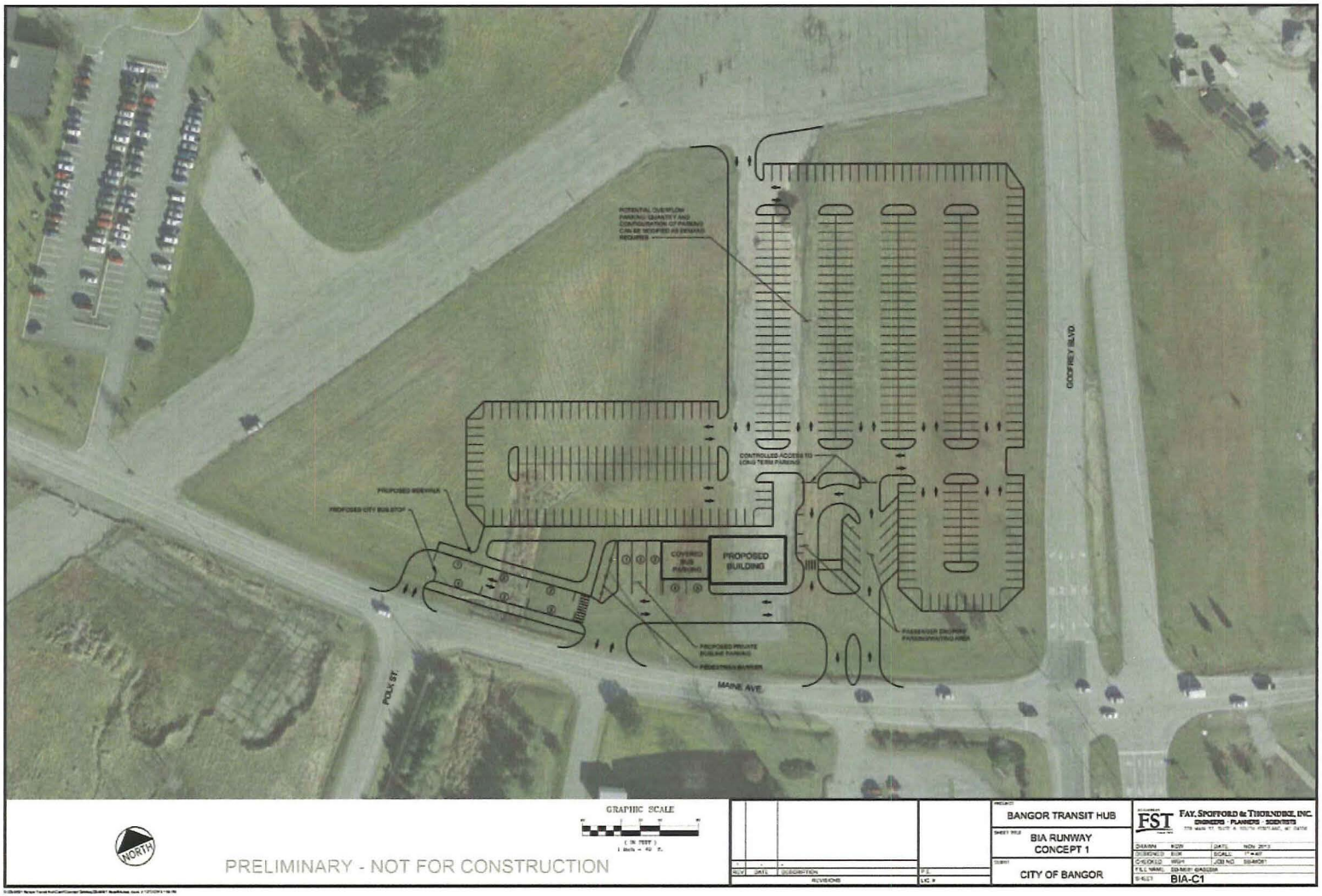


**Figure 8.8 Summer Street Transit Hub**

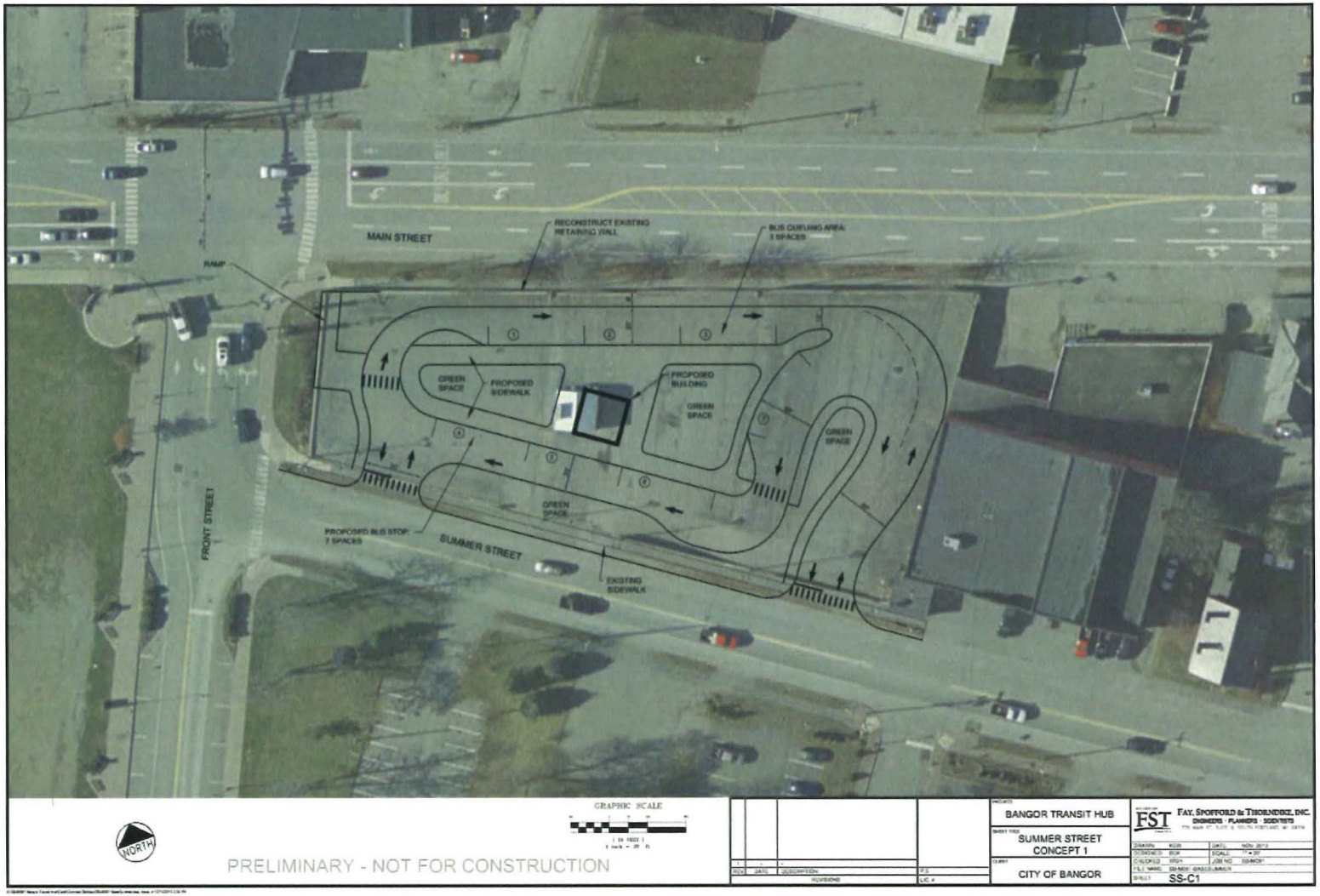
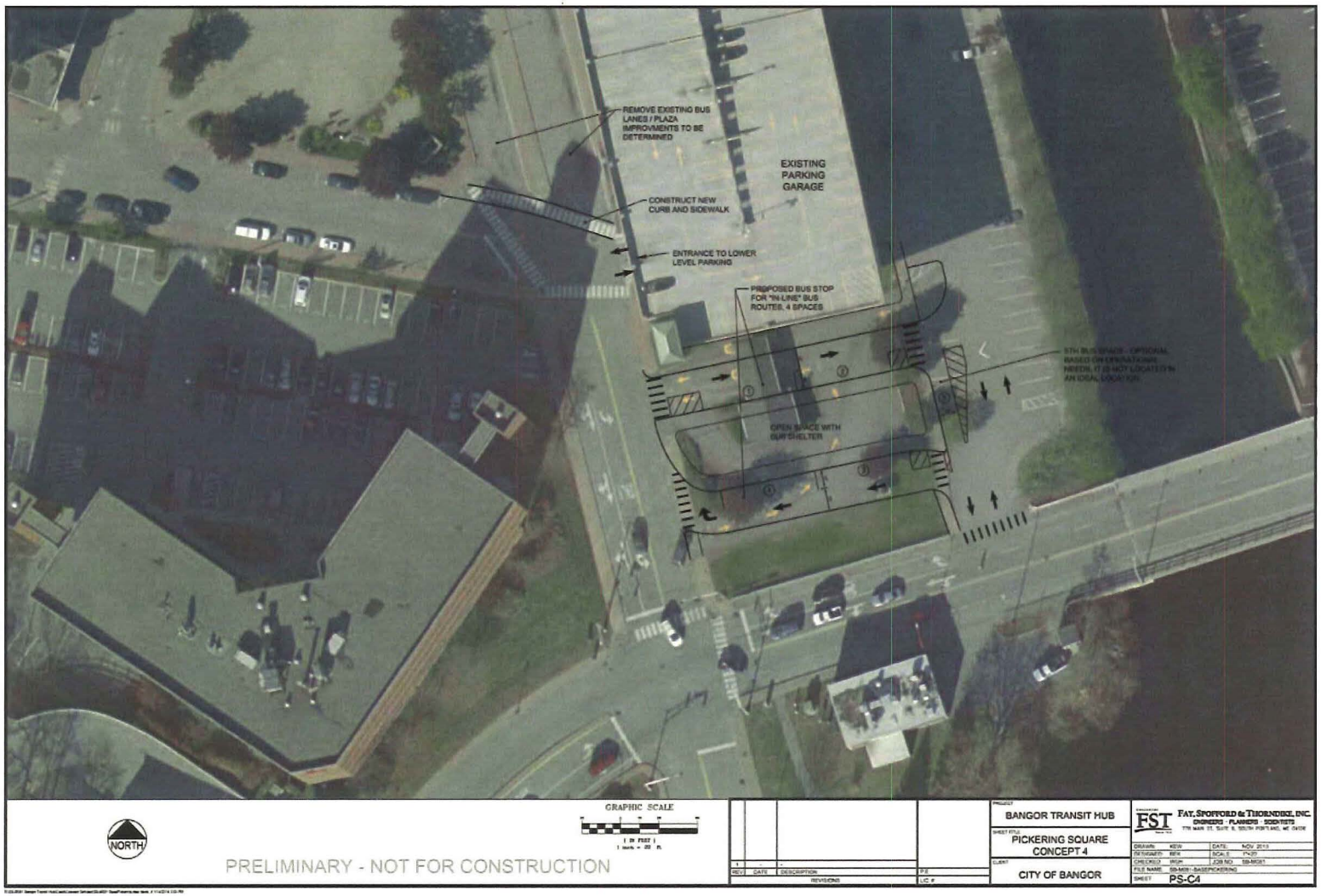


**Figure 8.9 Broad Street Conceptual Sketch**



# Chapter 9: Recommendations

This chapter presents the consulting team's recommendations for the future of Pickering Square and the Community Connector transit system. It summarizes the strengths and weaknesses of six transit hub alternatives, and it compares the anticipated construction costs associated with each strategy. It presents a conceptual landscape plan for Pickering Square, along with a draft Community Connector route map that takes advantage of a proposed transfer hub at the Airport Mall.

The chapter includes five sections.



## 9.1 Summary of Strengths and Weaknesses for Six Alternatives

Figure 9.1 presents a summary of strengths and weaknesses for six transit hub alternatives. For Pickering Square, this summary addresses just the Turn-out / Passenger Island alternative, because the other two Water Street options require transferring bus riders to cross Water Street.

Each of the five alternatives analyzed in Chapter 8 involves negative impacts for some groups in the community. For this reason, continued use of the two existing Pickering Square bus lanes has been added as a sixth alternative.

Three of the six alternatives involve continued use of Pickering Square as a transit hub. The community could enhance these Pickering Square alternatives by taking two steps: (1) acquiring quieter, alternative fuel transit buses, and (2) obtaining a federal grant to renovate and upgrade the existing parking garage restrooms and waiting area.

## Figure 9.1 Transit Hub Alternatives: Summary of Strengths and Weaknesses

| Alternative | Strengths | Weaknesses |
|---|---|---|
| **1. Limit buses at Pickering Square to no more than four at a time, and use just one of the existing bus stop lanes** | 1. Removes buses from the lane in front of the parking garage.<br>2. Reduces the impact on Pickering Square by reducing the number of buses.<br>3. Removes conflicts with cars entering the parking garage.<br>4. Little or no impact on operating costs. | 1. Introduces transfer delays for Hampden, Brewer, and Old Town bus riders.<br>2. Leaves pavement in front of the parking garage and leaves roadways encircling Pickering Square, limiting redesign options.<br>3. Pedestrian pathways continue to cross the bus stop site and multiple travel lanes. |
| **2. Use the Water Street side of Pickering Square, with a turnout parallel to Water Street** | 1. Removes buses and roadways from the front of the parking garage, creating opportunities for commercial use of the ground level.<br>2. Places buses on the side of Pickering Square, in a location where they will not block existing crosswalks and pedestrian pathways.<br>3. Allows for a Village Green-style redesign of Pickering Square.<br>4. Retains easy transit access for downtown residents.<br>5. Removes conflicts between pedestrians, buses, and cars.<br>6. Avoids a need for Main Street bus stops near West Market Square.<br>7. Less expensive than the Summer Street alternative.<br>8. Money invested in the transit hub will contribute to downtown improvements. | 1. Introduces transfer delays for Brewer and Hampden bus riders.<br>2. Restrooms and the heated waiting area will no longer be immediately adjacent to the bus stop.<br>3. Eliminates parking spaces along the Pickering Square side of Water Street.<br>4. Places buses between Key Bank Plaza and Pickering Square, which may be perceived as a visual and psychological barrier by Key Bank Plaza tenants. |
| **3. Option 2 plus an Airport Mall transit hub** | 1. A better transfer site is needed now.<br>2. An improved Airport Mall transfer hub will accommodate a new Hammond Street / Husson / Center Street route that will provide improved access to many Bangor destinations, while limiting the number of downtown transfers. | 1. Access along the side of the Hannaford store may be constrained at times by truck traffic.<br>2. A transit stop on the Griffin Road side of the Airport Mall will require passengers to walk through the mall building to reach Hannaford. |
| **4. Intercity bus terminal on airport property at Maine Avenue and Godfrey Boulevard** | 1. New improved intercity bus terminal for Concord Coach and Greyhound.<br>2. Overflow parking for Bangor International Airport.<br>3. Improved intermodal transportation links for the region. | 1. Three buses will be needed to maintain 30-minute headways on the Capehart route, resulting in higher operating costs.<br>2. This alternative will have a relatively high price tag. It is unknown whether federal funding will be available to help pay for this type of facility.<br>3. Improved bus stops at the Airport Mall will still be needed, even if most transfers take place at a new Maine Avenue terminal. |

| | | |
|---|---|---|
| **5. Summer Street** | 1. Removes buses from Pickering Square.<br>2. Accommodates seven buses at the same time, avoiding transfer delays. | 1. High price tag for design and construction, plus the unknown cost of acquiring the property.<br>2. Requires some bus riders to transfer to reach downtown.<br>3. Requires the addition of downtown bus stops on Water Street. Bus stops on Main Street may also be needed.<br>4. Service to the Bangor malls will need to be streamlined, eliminating some stops, to provide extra time for Stillwater Avenue and Mount Hope buses to reach Summer Street.<br>5. If a combined Hammond Street / Husson / Center Street route is not added, service on Center Street will need to be reduced to hourly to allow time to reach Summer Street. |
| **6. Continue to use the existing Pickering Square bus lanes, with renovated restroom facilities and redesigned pathways** | 1. Preserves all existing transfers.<br>2. No impact on operating costs.<br>3. Preserves existing on-street parking.<br>4. Avoids placing buses between Key Bank Plaza and Pickering Square | 1. Leaves pavement in front of the parking garage and leaves roadways encircling Pickering Square, limiting redesign options.<br>2. Pedestrian pathways continue to cross the bus stop site and multiple travel lanes.<br>3. Buses continue to present an obstacle for cars entering the parking garage at fifteen minutes past the hour. |

## 9.2 Comparison of Anticipated Construction Costs

Estimates of probable site improvement costs are provided in Figure 9.2.

Fay, Spoffard and Thorndike estimated $240,000 as the probable construction cost for adding a bus turnout in Pickering Square paralel to Water Street. Coplon Associates added $455,000 to this amount for associated pathway and landscape improvements, resulting in a combined cost for this option of $695,000.

The estimated construction costs for the Airport Mall were $20,000 for one space adjacent to Hannaford, and $22,000 for three spaces parallel to Union Street. Construction of a transfer island on the Griffin Road side of the mall complex is projected to cost $124,000. The combined cost for four bus spaces on the Hannaford side of the Airport Mall is estimated to be $42,000.

The engineers provided order of magnitude estimates for the Airport site of $2 - $2.5 million for site work and parking, plus $900,000 for buildings and structures. Costs for site improvements will vary depending on soil conditions and the number of parking spaces included.

## Figure 9.2 Engineers' Opinion of Probable Site Construction Costs

| Site | Cost | Comments |
|---|---|---|
| **Pickering Square – Construction of parallel Water Street turnout** | $240,000 | Walkway and landscape improvements are addressed separately. |
| **Pickering Square – Landscape improvements, including pavers, loam, seed, plantings, and furnishings** | $455,000 | |
| **Combined cost for Pickering Square** | $695,000 | |
| **Airport Mall – Bus island on the Griffin Road side of the mall** | $124,000 | |
| **Airport Mall – One space adjacent to Hannaford** | $20,000 | The single space next to Hannaford could be combined with three spaces along Union Street, or the single space next to Hannaford could be combined with the bus island on the Griffin Road side of the mall complex. |
| **Airport Mall – Three spaces adjacent to Union Street** | $22,000 | |
| **Bangor International Airport – Intercity bus terminal and overflow airport parking** | $2 - 2.5 million plus $900,000 for a terminal building | This is an order of magnitude estimate. Costs will depend on the number of parking spaces and on existing soil conditions. |
| **Summer Street** | $1 million plus $195,000 for a building with restrooms and a passenger waiting room | This is an order of magnitude estimate. It does not include the unknown cost of acquiring the privately owned site. |

**Assumptions and Exclusions**

1. Estimates are based on conceptual plans dated December 2013. These estimates do not benefit from survey or design of grading and drainage. Estimates are for the approximate construction cost and exclude costs for design, permitting, construction management, and inspection.

2. All estimates, with the exclusion of Pickering Square landscaping, were provided by Fay, Spoffard and Thorndike, Inc. The Pickering Square landscaping estimate was provided by Coplon Associates.

3. The consultants have provided these estimates with the understanding that neither FST, Inc. nor Coplon Associates has control over the cost or availabilitiy of labor, equipment and materials, or over market conditions or contractors' methods of pricing, and that the Engineer's Opinion of Probable Construction Cost is based on the professional judgment and experience of FST and Coplon Associates. FST Inc. and Coplon Associates make no warranty, expressed or implied, that future bids or negotiated costs will not vary from the Engineer's Opinion of Probable Construction Costs.

The engineers provided order of magnitude estimates for Summer Street of $1 million for site improvements plus $195,000 for a building that would house a passenger waiting area and restrooms.

These are rough estimates that do not benefit from detailed site surveys or detailed design of required grading and drainage. These construction cost estimates that do not include costs for design, permitting, and construction management.

## 9.3 Consulting Team's Recommendations

The consultants developed three sets of recommendations for Bangor and its Community Connector partners. Part one addresses Pickering Square and bus stops in downtown Bangor. Part two recommends creation of a new outlying hub at the Airport Mall. Part three suggests changes to six Community Connector bus routes.

*Downtown Bangor and Pickering Square*

The consultants were unable to locate an available, affordable, and viable alternative to continued use of Pickering Square as a downtown Community Connector transit hub. They recommend that the city choose between two Pickering Square alternatives: (1) design and construct a new turnout and passenger waiting island parallel to Water Street, or (2) continue to use both of the existing bus lanes in front of the parking garage for Community Connector buses.

The consultants consider the Water Street option to be preferable, because it removes bus stop activity from important pedestrian pathways and because it allows for a village green-style redesign of the public square. But they also recognize that the Water Street option will result in transfer delays for Hampden and Brewer bus riders, and that buses on Water Street may be perceived by some Key Bank Plaza tenants as an obstacle between their building and Pickering Square.

With either approach, the city should continue its efforts to obtain federal funding to purchase quieter, alternative-fuel buses. Also, if buses remain where they are, the city should hire a landscape architect to design improved pathways through Pickering Square.

The city may want to pursue a third Pickering Square alternative that came to light at the end of the planning process. At the December 16 meeting of the Government Operations Committee, a City Councilor asked if a transit hub could fit on the site next to the parking garage that is currently occupied by a Key Bank drive through facility. The consultants did not consider this location earlier because it is occupied by a private business, and because there has been no indication that it might be made available for use by the city.

The consultants did not contact Key Bank to inquire about this property. They did, however, prepare a preliminary sketch showing that the site could be reconfigured to accommodate up to five transit buses. This would require eliminating some of the parking spaces in the city-owned lot adjacent to Kenduskeag Stream. Two buses would enter the

site from Washington Street and exit onto Broad Street. Three buses would enter from Broad Street and exit onto Washington Street. Route and schedule adjustments for this location would be the same as the adjustments required for the Water Street alternative.

The city may be able to help Key Bank find a better downtown site for a drive through facility. Moving the transit hub to Broad Street would preserve transit access in the downtown center, while moving buses away from views and pathways associated with Pickering Square.

The main drawbacks to Broad Street are (1) transfer delays for Hampden and Brewer bus riders, (2) a longer walk between the bus stop and restroom and waiting room facilities, and (3) an exit onto Broad Street that is relatively close to the nearby signaled intersection. Left-hand turns onto Washington Street could be avoided by having Old Town, Stillwater Avenue, and Mount Hope buses exit the site by turning right on Washington Street, followed by a right on Broad Street, before continuing via Water Street, Main Street, and State Street.

The consultants recommend that the City of Bangor apply for Federal Transit Administration funding to cover 80% of the cost of transit-related improvements in or near Pickering Square.

*Airport Mall*

The consultants considered alternative locations for an outlying transfer hub near the Airport Mall and Bangor International Airport. They recommend that new bus stops be constructed at the Airport Mall on the access drive next to Hannaford. A stop for one bus would be added on the Hannaford side of the access drive, and space for three buses would be added next to Union Street. This approach assumes that delivery trucks will not block vehicular access around the rear of the Hannaford store. If access around the store cannot be assured, the consultants recommend construction of a transfer island on the Griffin Road side of the Airport Mall property.

The consultants recommend that the City of Bangor apply for Federal Transit Administration funding to cover 80% of the cost of these Airport Mall bus stops. If federal funding is available, the city and the mall owners could be each asked to contribute 10% of the project cost.

*Changes to Community Connector Bus Routes*

The consultants recommend that the transit system introduce the following changes to the Community Connector route structure:

- Introduce 30-minute service in both directions on a combined Center Street / Husson University / Hammond Street bus route. This new route would provide improved access and more frequent service to Husson University. It would provide improved access to Community College and Bangor International Airport, while reducing the number of people who transfer between buses at Pickering Square. This new combined route would replace the existing Mall Hopper service, which means that the transit system would no longer offer a direct link between the Broadway Shopping Center and the Bangor Mall.

- Streamline the Capehart route by eliminating diversions to the airport and the Department of Human Services building. This will allow midday Capehart service to operate with two buses instead of three. The airport and DHS would instead be added to the route of Center Street / Husson University / Center Street buses.

- Revise Odlin Road service by beginning the route at the Airport Mall, and by operating it hourly throughout the day. This will provide faster and more convenient access to Odlin Road destinations, while reducing downtown transfer activity at Pickering Square.

- Add a third bus to the Old Town route during peak commuting times to provide 30-minute headways between downtown Bangor and the University of Maine. Old Town partners should also consider extending the hours for the extra afternoon bus to provide evening service between the University and downtown.

## 9.4 Pickering Square Conceptual Landscape Design

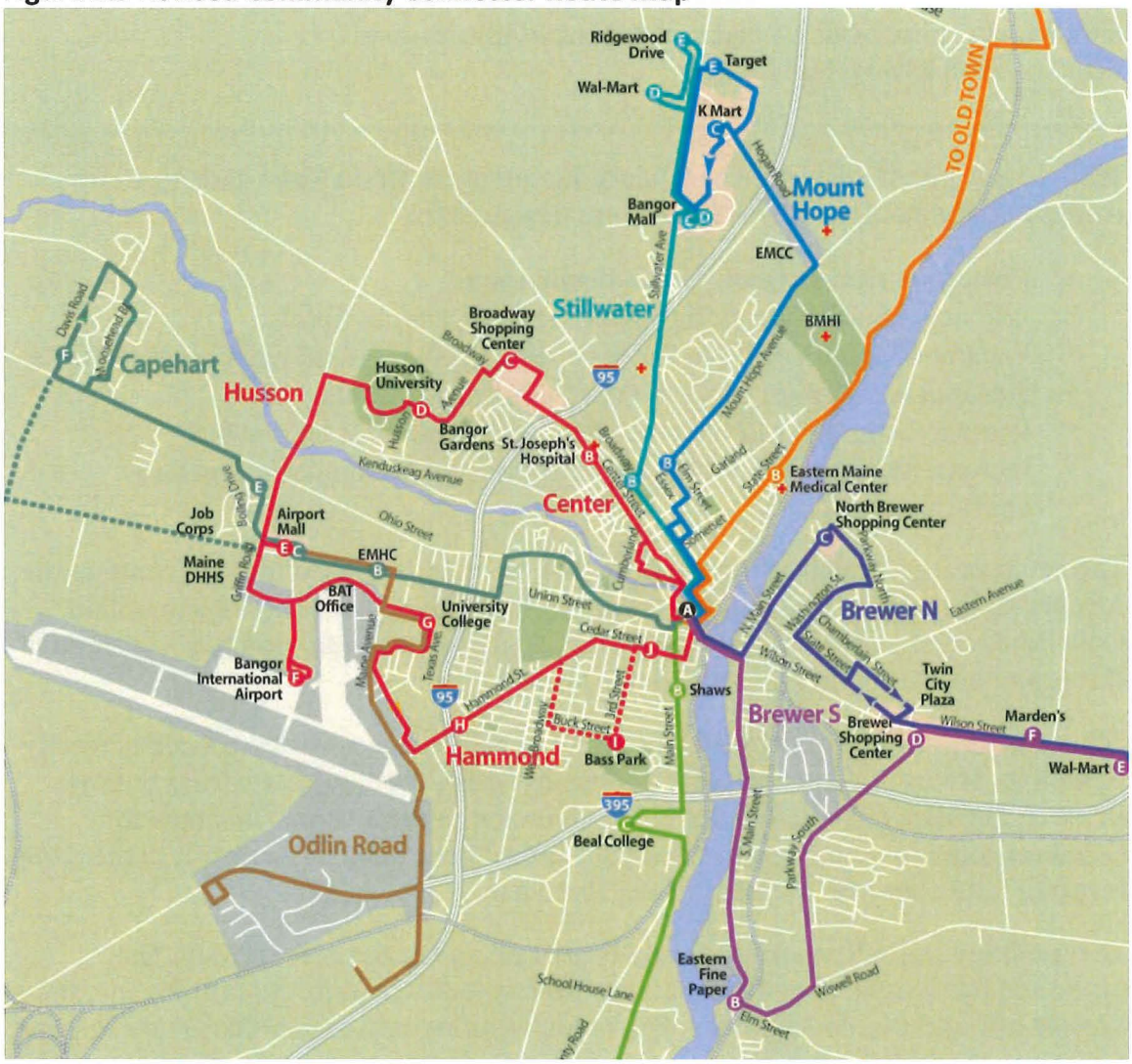
Figure 9.3 presents a conceptual sketch of possible improvements to the Pickering Square landscape design. Roadways in front of the parking garage would be eliminated. Grass, trees, and Village Green-style pathways would replace the pavers that currently dominate the center of the square.

Figure 9.4 presents an additional sketch that shows how the proposed site design accommodates important pedestrian movements through the public square. This includes pedestrian movements to and from the parking garage, pedestrian movements to and from the Community Connector bus stop, and a pedestrian link between Bangor's downtown center and the Penobscot River waterfront.

## 9.5 Proposed Community Connector Route Map

Figure 9.5 presents a proposed Community Connector route map. It envisions a new circular bus route that would serve downtown Bangor, Center Street, Husson University, and Hammond Street. Two buses would provide clockwise service every thirty minutes, and two buses would provide counterclockwise service every thirty minutes. This combined route would replace the current Mall Hopper route. The map also shows proposed improvements to the Capehart route and to the Odlin Road route.

**Figure 9.5 Revised Community Connector Route Map**




These changes take advantage of a proposed new transfer hub at the Airport Mall. They will result in faster travel times and fewer transfers for many bus riders, along with improved access to Husson University, University College, Bangor International Airport, and destinations on the Odlin Road and outer Hammond Street.

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Appendix A

**Tom Crikelair Associates**
1 Davis Place
Bar Harbor, Maine 04609

December 11, 2013

MEMORANDUM

To: Laurie Linscott
From: Tom Crikelair
Subject: Proposed Odlin Road and Capehart Adjustments
CC: Bob Farrar, Don Cooper

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This memorandum discusses possible adjustments to Odlin Road and Capehart routes and timetables. These changes are designed to:

- Preserve service to Odlin Road destinations.
- Add new links between the airport and Odlin Road hotels.
- Expand the hours of Odlin Road service to benefit hotel workers and guests.
- Streamline Capehart service by providing faster rides.
- Reduce Community Connector vehicle requirements by one bus.
- Increase the benefits of Odlin Road service while reducing Capehart operating costs.

The basic strategy involves moving the starting point of the Odlin Road route to the Airport Mall, moving DHS and the airport from the Capehart route to a modified Odlin Road route, operating this modified Capehart route with two buses instead of three, and operating the Odlin Road bus all day.

After arriving at the Airport Mall, outbound Capehart buses would proceed directly to Bolling Drive and Capehart. Inbound buses would travel directly from Bolling Drive to the Airport Mall. Removing the diversion to the airport will allow the Capehart route to operate with two buses throughout the day. Currently, a third bus is brought into service on this route at 10:45 a.m.

The modified Odlin Road route would begin and end at the Airport Mall. The outbound bus would serve DHS, Bangor International Airport, the Holiday Inn, the Ranger Inn, and Discovery House. The inbound bus would depart Discovery House and serve the Holiday Inn, the Airport, and DHS, before returning to the Airport Mall. One bus would operate hourly throughout the day. This route would provide direct links between the Airport and Odlin Road hotels.

The Odlin Road bus would have timed transfers at the Airport Mall with outbound Capehart buses, with inbound Capehart buses, and with the Mall Hopper bus. Transfers at the Airport Mall would likely need to be moved to the Griffin Road side of the mall complex to accommodate multiple connecting buses.

Currently, the Odlin Road bus operates 6.7 hours per day, while the third Capehart bus operates 7.5 hours per day, for a combined total of 14.2 hours per day. The proposed modified Odlin Road service would operate 10.8 hours per day. The proposed change would thus result in a savings of 3.4 hours per day, while requiring one less bus in the Community Connector fleet.

It might be possible to save one additional service hour each day by cancelling the 6:00 p.m. Mall Hopper round trip. This bus connects with the Stillwater Avenue bus at the Bangor Mall at 6:20 p.m., but it arrives too late to connect with the Center Street bus or with inbound or outbound Capehart buses. Current usage of this last Mall Hopper trip should be checked before deciding whether it is in fact a candidate for elimination.

**CURRENT SERVICE**

| | Start | End | Hours |
|---|---|---|---|
| CAPEHART | | | |
| Bus 1 | 6:06 a | 5:45 p | 11.7 |
| Bus 2 | 6:15 a | 6:45 p | 12.5 |
| Bus 3 | 10:45 a | 6:15 p | 7.5 |
| | | | 31.7 |
| MALL HOPPER | | | |
| Bus 1 | 6:55 a | 6:45 p | 11.8 |
| | | | |
| ODLIN ROAD | | | |
| Bus 1 | 6:33 a | 11:25 a | 4.9 |
| Bus 2 | 4:33 p | 6:25 p | 1.9 |
| | | | 6.7 |
| Total service hours | | | 50.2 |

**PROPOSED STRATEGY**

| | Start | End | Hours |
|---|---|---|---|
| CAPEHART | | | |
| Bus 1 | 6:10 a | 6:25 p | 12.3 |
| Bus 2 | 6:15 a | 6:10 p | 11.9 |
| | | | 24.2 |
| MALL HOPPER | | | |
| Bus 1 | 7:00 a | 5:50 p | 10.8 |
| | | | |
| ODLIN ROAD | | | |
| Bus 1 | 7:00 a | 5:50 p | 10.8 |
| Bus 2 | | | |
| | | | 10.8 |
| Total service hours | | | 45.8 |

**PROPOSED CAPEHART TIMETABLE**

| Depot | EHHC | Airport Mall | Bolling Drive | Cape-hart | Bolling Drive | Airport Mall | Depot |
|---|---|---|---|---|---|---|---|
| | | | | **6:10 a** | 6:20 a | 6:25 a | 6:40 a |
| **6:15 a** | 6:23 a | 6:30 a | 6:31 a | 6:40 a | 6:50 a | 6:55 a | 7:10 a |
| 6:45 a | 6:53 a | 7:00 a | 7:01 a | 7:10 a | 7:20 a | 7:25 a | 7:40 a |
| 7:15 a | 7:23 a | 7:30 a | 7:31 a | 7:40 a | 7:50 a | 7:55 a | 8:10 a |
| 7:45 a | 7:53 a | 8:00 a | 8:01 a | 8:10 a | 8:20 a | 8:25 a | 8:40 a |
| 8:15 a | 8:23 a | 8:30 a | 8:31 a | 8:40 a | 8:50 a | 8:55 a | 9:10 a |
| 8:45 a | 8:53 a | 9:00 a | 9:01 a | 9:10 a | 9:20 a | 9:25 a | 9:40 a |
| 9:15 a | 9:23 a | 9:30 a | 9:31 a | 9:40 a | 9:50 a | 9:55 a | 10:10 a |
| 9:45 a | 9:53 a | 10:00 a | 10:01 a | 10:10 a | 10:20 a | 10:25 a | 10:40 a |
| 10:15 a | 10:23 a | 10:30 a | 10:31 a | 10:40 a | 10:50 a | 10:55 a | 11:10 a |
| 10:45 a | 10:53 a | 11:00 a | 11:01 a | 11:10 a | 11:20 a | 11:25 a | 11:40 a |
| 11:15 a | 11:23 a | 11:30 a | 11:31 a | 11:40 a | 11:50 a | 11:55 a | 12:10 p |
| 11:45 a | 11:53 a | 12:00 p | 12:01 p | 12:10 p | 12:20 p | 12:25 p | 12:40 p |
| 12:15 p | 12:23 p | 12:30 p | 12:31 p | 12:40 p | 12:50 p | 12:55 p | 1:10 p |
| 12:45 p | 12:53 p | 1:00 p | 1:01 p | 1:10 p | 1:20 p | 1:25 p | 1:40 p |
| 1:15 p | 1:23 p | 1:30 p | 1:31 p | 1:40 p | 1:50 p | 1:55 p | 2:10 p |
| 1:45 p | 1:53 p | 2:00 p | 2:01 p | 2:10 p | 2:20 p | 2:25 p | 2:40 p |
| 2:15 p | 2:23 p | 2:30 p | 2:31 p | 2:40 p | 2:50 p | 2:55 p | 3:10 p |
| 2:45 p | 2:53 p | 3:00 p | 3:01 p | 3:10 p | 3:20 p | 3:25 p | 3:40 p |
| 3:15 p | 3:23 p | 3:30 p | 3:31 p | 3:40 p | 3:50 p | 3:55 p | 4:10 p |
| 3:45 p | 3:53 p | 4:00 p | 4:01 p | 4:10 p | 4:20 p | 4:25 p | 4:40 p |
| 4:15 p | 4:23 p | 4:30 p | 4:31 p | 4:40 p | 4:50 p | 4:55 p | 5:10 p |
| 4:45 p | 4:53 p | 5:00 p | 5:01 p | 5:10 p | 5:20 p | 5:25 p | 5:40 p |
| 5:15 p | 5:23 p | 5:30 p | 5:31 p | 5:40 p | 5:50 p | 5:55 p | 6:10 p |
| 5:45 p | 5:53 p | 6:00 p | 6:01 p | 6:10 p | 6:20 p | 6:25 p | |

**PROPOSED ODLIN ROAD TIMETABLE**

| Airport Mall | Airport | Holiday Inn | Ranger Inn | arrive Discovery House | depart Discovery House | Holiday Inn | Airport | Airport Mall |
|---|---|---|---|---|---|---|---|---|
| 7:00 a | 7:05 a | 7:10 a | 7:20 a | 7:25 a | 7:30 a | 7:32 a | 7:45 a | 7:50 a |
| 8:00 a | 8:05 a | 8:10 a | 8:20 a | 8:25 a | 8:30 a | 8:32 a | 8:45 a | 8:50 a |
| 9:00 a | 9:05 a | 9:10 a | 9:20 a | 9:25 a | 9:30 a | 9:32 a | 9:45 a | 9:50 a |
| 10:00 a | 10:05 a | 10:10 a | 10:20 a | 10:25 a | 10:30 a | 10:32 a | 10:45 a | 10:50 a |
| 11:00 a | 11:05 a | 11:10 a | 11:20 a | 11:25 a | 11:30 a | 11:32 a | 11:45 a | 11:50 a |
| 12:00 p | 12:05 p | 12:10 p | 12:20 p | 12:25 p | 12:30 p | 12:32 p | 12:45 p | 12:50 p |
| 1:00 p | 1:05 p | 1:10 p | 1:20 p | 1:25 p | 1:30 p | 1:32 p | 1:45 p | 1:50 p |
| 2:00 p | 2:05 p | 2:10 p | 2:20 p | 2:25 p | 2:30 p | 2:32 p | 2:45 p | 2:50 p |
| 3:00 p | 3:05 p | 3:10 p | 3:20 p | 3:25 p | 3:30 p | 3:32 p | 3:45 p | 3:50 p |
| 4:00 p | 4:05 p | 4:10 p | 4:20 p | 4:25 p | 4:30 p | 4:32 p | 4:45 p | 4:50 p |
| 5:00 p | 5:05 p | 5:10 p | 5:20 p | 5:25 p | 5:30 p | 5:32 p | 5:45 p | 5:50 p |

Note: Outbound stops at the Holiday Inn could be limited to on-request stops to drop off passengers.

**PROPOSED MALL HOPPER TIMETABLE**

| Airport Mall | Husson Univ | B'way Shop Center | arrive Bangor Mall | depart Bangor Mall | B'way Shop Center | Husson Univ | Airport Mall |
|---|---|---|---|---|---|---|---|
| 7:00 a | 7:07 a | 7:10 a | 7:20 a | 7:25 a | 7:35 a | 7:40 a | 7:50 a |
| 8:00 a | 8:07 a | 8:10 a | 8:20 a | 8:25 a | 8:35 a | 8:40 a | 8:50 a |
| 9:00 a | 9:07 a | 9:10 a | 9:20 a | 9:25 a | 9:35 a | 9:40 a | 9:50 a |
| 10:00 a | 10:07 a | 10:10 a | 10:20 a | 10:25 a | 10:35 a | 10:40 a | 10:50 a |
| 11:00 a | 11:07 a | 11:10 a | 11:20 a | 11:25 a | 11:35 a | 11:40 a | 11:50 a |
| 12:00 p | 12:07 p | 12:10 p | 12:20 p | 12:25 p | 12:35 p | 12:40 p | 12:50 p |
| 1:00 p | 1:07 p | 1:10 p | 1:20 p | 1:25 p | 1:35 p | 1:40 p | 1:50 p |
| 2:00 p | 2:07 p | 2:10 p | 2:20 p | 2:25 p | 2:35 p | 2:40 p | 2:50 p |
| 3:00 p | 3:07 p | 3:10 p | 3:20 p | 3:25 p | 3:35 p | 3:40 p | 3:50 p |
| 4:00 p | 4:07 p | 4:10 p | 4:20 p | 4:25 p | 4:35 p | 4:40 p | 4:50 p |
| 5:00 p | 5:07 p | 5:10 p | 5:20 p | 5:25 p | 5:35 p | 5:40 p | 5:50 p |

**SAMPLE AIRPORT MALL ARRIVALS, DEPARTURES, AND CONNECTIONS**

| Origin | Arrives | Destination | Departs |
|---|---|---|---|
| Capehart | 6:22 a | Downtown | 6:25 a |
| Downtown | 6:27 a | Capehart | 6:30 a |
| Capehart | 6:52 a | Downtown | 6:55 a |
| Downtown | 6:57 a | Capehart | 7:00 a |
| | | Odlin Road | 7:00 a |
| | | Mall Hopper | 7:00 a |
| Capehart | 7:22 a | Downtown | 7:25 a |
| Downtown | 7:27 a | Capehart | 7:30 a |
| Capehart | 7:52 a | Downtown | 7:55 a |
| Mall Hopper | 7:50 a | Mall Hopper | 8:00 a |
| Odlin Road | 7:50 a | Odlin Road | 8:00 a |
| Downtown | 7:57 a | Capehart | 8:00 a |
| Capehart | 8:22 a | Downtown | 8:25 a |
| Downtown | 8:27 a | Capehart | 8:30 a |

At the Airport Mall, transfers could perhaps take place on the Griffin Road side of the mall complex to accommodate multiple connecting buses. For now, buses should be able to stop along the sidewalk near the rear pet store entrance. A conversation will be needed with the Airport Mall owners to seek their agreement with this approach. For the longer term, a new Airport Mall transit hub and shelter could be constructed, as discussed in the Transit Hub Alternatives Study.

Mall Hopper and Odlin Road buses would arrive at the Airport Mall at 10 minutes before the hour. They would drop off arriving passengers and then move away from the bus stop temporarily. The inbound Capehart bus would arrive at about 8 minutes before the hour and depart at 5 minutes before the hour. The outbound Capehart bus would arrive at about 3-5 minutes before the hour and depart at the top of the hour. After both Capehart buses have departed, the Odlin Road and Mall Hopper buses would return to the bus stop to pick up passengers transferring from inbound or outbound Capehart buses.

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