TOWN OF BRUNSWICK

DOWNTOWN BRUNSWICK AND OUTER
PLEASANT STREET CORRIDOR
MASTER PLAN IMPLEMENTATION COMMITTEE

28 FEDERAL STREET, BRUNSWICK, ME 04011-1583

Margo Knight, Chair
Citizen-at-Large

John Perreault, Vice Chair
Councilor – District 4

Jane Millett
Councilor – District 6

Paul Dostie
Resident - Downtown

Anne "Vicky" Marr
Creative Economy/Non-profit

Jacqueline Ellis
Citizen at Large

Debora King
BDA Member

Toby Tarpinian
Business Owner - Downtown

Kathy Wilson
Resident – Pleasant Street

Vacant
Business Owner – Pleasant Street

MEETING AGENDA
MONDAY, JANUARY 27, 2014
6:30 P.M.
MORRELL MEETING ROOM
CURTIS MEMORIAL LIBRARY
23 PLEASANT STREET

1. **Introductions/Public Comment**

2. **Acceptance of 11/25/13 Meeting Summary**

3. **Election of Chair and Vice-Chair**

4. **Master Plan Outreach Activities**
   a. **1/13/14 Retreat Discussion**
      - **Maine Street Redesign Update – Next Steps**
   b. **Raised Crosswalks**
   c. **Public Outreach Strategy**

5. **Presentations/Project Updates**
   a. **BDA Design Committee – MDF Resources Team Report**
   b. **Route 24 Rerouting/creation of Business Route 24 (Maine Street/Bath Road)**
   c. **Town Zoning Ordinance Rewrite Public Sessions Update**
   d. **Other Projects**

6. **Subcommittee Reports**
   a. **Visual Quality**
   b. **Ped/Vehicular**
   c. **Neighborhoods**
   d. **Finance/Marketing/Need for New Chair**

7. **2013 Accomplishments**
   a. **Scheduling of 2014 Committee Goals Brainstorming Session**

8. **Next Meeting To Dos/Agenda**
   a. **February meeting date**

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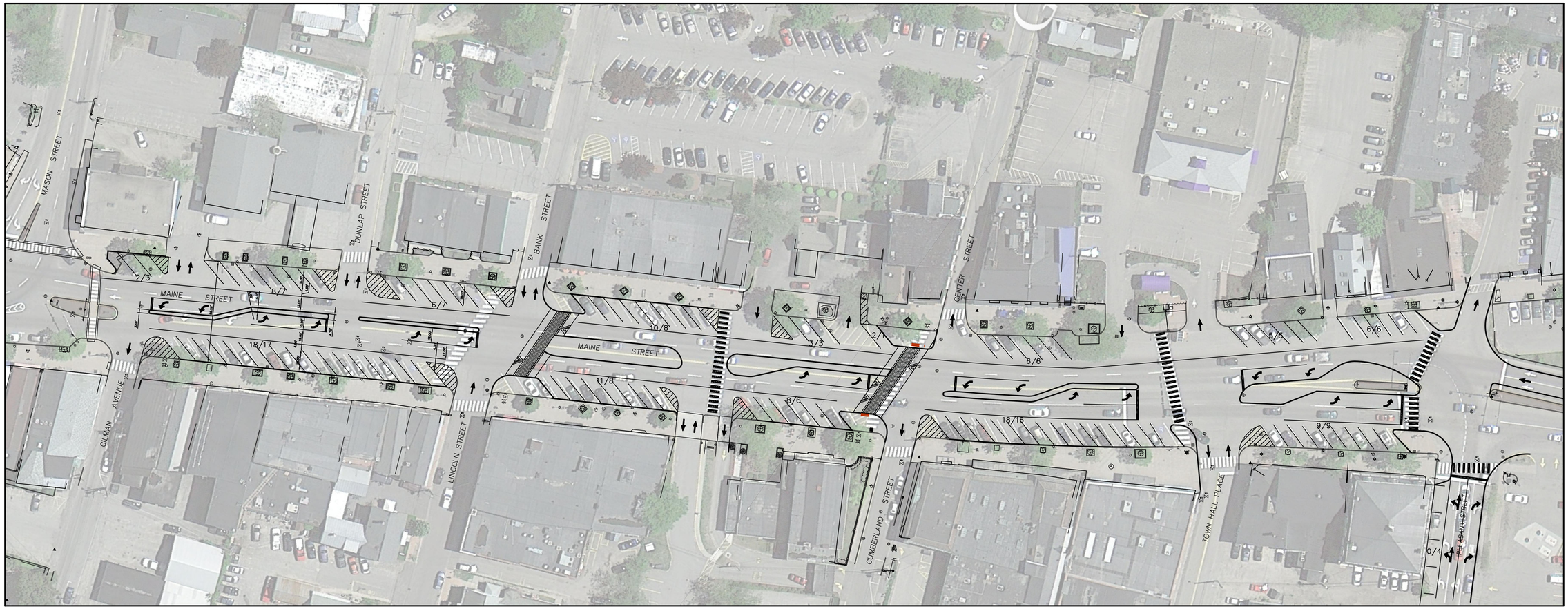
MEETING SUMMARY
MONDAY, NOVEMBER 25, 2013

1. **Introductions/Public Comment –** No public comment received.
2. **10/25/13 Meeting Summary** – Accepted.
3. **Master Plan Outreach Activities.**
   a. **Maine Street Redesign Update.** No update.
   b. **Update of raised crosswalks.** MPIC Marketing Subcommittee drafted a press release (special thanks to Claudia Knox), and developed an outreach and education strategy regarding raised crosswalks. Margo noted that she stopped in a couple of businesses downtown to gauge reactions to crosswalks, as well as called some community members who expressed enthusiasm for the crosswalks; she encouraged them to write letters to the editor to get the positive word out. Kathy noted that the only comments in the paper were 2 critical letters to the editor in the Times Record. Vicky noted that the press release was sent to all regional and local papers, but was not published.
4. **Public Outreach Strategy.** Jaki suggested meeting with Times-Record editorial staff regarding potential for future articles on MPIC activities.
5. **Presentations/Project Updates**
   a. **BDA Design Committee Work.** Deb reported on activities of the BDA Design Committee; holiday lighting of poles downtown, mounting of 50 large decorated wreaths on lamp posts, between Mason and Noble Streets, electrification of some light posts along the Mall to benefit future events. Debora noted good participation in the downtown window decorating contest. The application for the Maine Street Historic District is moving forward. The BDA was awarded $250K from the Brunswick Development Corporation to administer a façade improvement grant program with application packages expected to be available in January 2014. Winter banners were installed, but unfortunately have to be reinstalled due to the probability that snow plows would damage them. They will now be oriented toward the sidewalk.
   b. **Bike/Pedestrian Activities Update.** No update.
   c. **Town Zoning Ordinance Rewrite Public Sessions Update**. Jeremy gave a brief overview of upcoming zoning ordinance rewrite public sessions. Next week, the consultant, Clarion Associates (Don Elliott as project lead), will lead a series of public input, educational, and stakeholder meetings. Town staff is responsible for public outreach. Jeremy reviewed event dates, times, and locations, and answered questions from MPIC members.

d. **Other Projects.** Margo gave an overview of Capt. Mark Waltz's Violation Breakdown Spreadsheets for Maine Street, comparing data from both parking audits. Members discussed the differences in the number of violations issued between April-June and July-September, and possible explanations for these differences.

6. **Subcommittee Reports –** No reports.
7. **Other Business –** None.
8. **Next Meeting To Dos/Agenda:**
   a. December meeting is scheduled for 23rd, therefore meeting has been cancelled.
   b. Marketing and Outreach subcommittee meeting scheduled for December 12th at 4:30 PM. Location TBD.
   c. MPIC Retreat scheduled for January 13, 2014, location TBD.

Present: Margo Knight, Chair; Paul Dostie; Vicky Marr; Kathy Wilson; Jaki Ellis; Deb King; Jeremy Doxsee, Committee Staff
Attendees: Will Wilkoff and Dylan Martin



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GRAPHIC SCALE

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(IN FEET)
1 inch = 40 ft.

GN

MESPCS West Zone

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1.	04-29-13	SUBMITTED TO TOWN PLANNER	CYN

CONCEPTUAL TRAFFIC LAYOUT

LOWER MAINE STREET
BRUNSWICK, MAINE

PREPARED FOR:
THE TOWN OF BRUNSWICK

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CH'D BY: CYN	MAP/LOT:	
DATE: 02-22-13	FILE: 1699-08-SITEPLAN-RAISED-ISLAND	

T·Y·LIN INTERNATIONAL
engineers | planners | scientists

January 9, 2014

Anna Breinich, AICP
Director of Planning and Development
Town of Brunswick
28 Federal Street
Brunswick, ME 04011

Re: Maine Street Improvement Plan Traffic Peer Review, Brunswick, ME

Anna,

Per your request we have conducted a traffic peer review of improvements proposed along Maine Street between Pleasant Street and Mill Street. The focus of our review was based upon a Conceptual Traffic Layout plan prepared by SiteLines, PA dated June 7, 2013. The following represents our comments based upon a field investigation and specific review items noted in our scope of work proposal.

- In general I find the details of the plan to be excellent and a good example of a Complete Streets project. General plan comments are noted below.
    - The plan limits of work should include the crosswalk on Maine Street on the south side of Pleasant Street. This is an important crosswalk in the multi-modal function of the Maine Street/Pleasant Street intersection.
    - The center island on Maine Street south of the Pleasant Street intersection should be expanded given the reduction of the number of southbound through lanes. There may be opportunities to provide a raised refuge area for the crosswalk noted in the above bullet.
    - The pedestrian signal phasing at the Pleasant Street intersection does not provide sufficient time for a full Maine Street crossing. Additionally, the pedestrian signals do not permit pedestrians to cross from the center island to the northwest corner, when no vehicle conflict exists. The traffic signals phasing plan should be revised to allow for better pedestrian mobility.
    - All sidewalk ramps will need to be upgraded to be ADA compliant including the provision of detectible warning panels.
    - The Pleasant Street approach to Maine Street is being adjusted with the reduction of one travel lane. It is unclear where the additional lane width is being allocated to (the curb to curb width appears unchanged).
    - A curb extension/bump out should be provided on the side of the Maine Bank ATM. During the final design process, the extent of this curb extension will need to consider fire truck movements from Town Hall Place. Our analysis indicates the curb line can be extended into Maine Street without impacting fire truck movements.
    - The crosswalk at Town Hall Place is somewhat conflicting from a traffic control perspective. It functions as both an uncontrolled mid-block crosswalk, but

southbound traffic is controlled by a traffic signal, linked to the Pleasant Street intersection. While historically no problems have been reported, I am concerned that the mixed message (vehicles reacting to green signal heads – indicative of right-of-way – and pedestrians expecting vehicles to yield may contribute to a vehicle/pedestrian crash). At this time I would suggest that no changes to the crossing be implemented. In the future a warning sign system that restricts pedestrian crossing (prohibits crossings when signal is green, through a dynamic message sign, is suggested). Lastly, I would note that the possible future relocation of the Fire Station to another location would allow elimination of the confusing traffic control.

- It is my recommendation that the Bank of America ATM driveway be closed such that a curb extension/bump out can be provided. I recognize that this requires circulation changes on the bank site, but this change should be considered for future efforts.
- On the east side of the crosswalk opposite Bank of America, a minor curb extension/bump out should be considered. Turning movements from the driveway will limit the extent of the curb-extension and a detailed analysis will need to be conducted during final design.
- The center island at the Gilman Avenue crosswalk should be expanded to shadow the proposed left-turn lane.
- A review of the Maine Street improvement changes on the signalized intersection with Route 1 was performed. In the southbound direction little or no traffic impact is anticipated. Currently one travel lane departs the Mason Street intersection and one lane will remain under the plan. In the northbound direction there may be some impact to vehicles destined to Route 1 southbound. Under existing conditions, one Maine Street lane is destined towards Topsham and one lane is destined to Route 1 southbound. If northbound traffic queues from the signal extending past Mason Street, vehicles destined to Route 1 will not be able to access the left-turn lane and thus vehicle queues will increase on Maine Street. Based upon approximated traffic volumes a traffic analysis indicates the change will not disrupt conditions at the traffic signal and along Maine Street. Long queues are predicted on the Route 1 off-ramp, but traffic flow on Maine Street following the change is predicted to be acceptable. I would note that the analysis is based upon a optimize traffic signal phasing and timing plan and therefore adjustment to the signal is suggested as part of the design. Additionally, special signage and pavement markings should be considered at the Mason Street intersection to ensure blockage of the intersection does not occur.

- We have conducted traffic modeling analyses along Maine Street in the study area to determine how the proposed changes will impact traffic mobility. Limited traffic volume data is available at the unsignalized locations. We conducted 15-minute traffic counts at these locations and converted them to a 1-hour equivalent. The following presents our findings as it relates to specific items requested for review.

- *The impact on traffic flow through downtown if only one lane is available* – According to the traffic models traffic flow on Maine Street is not significantly impacted by having one through lane in each direction and providing left-turn lanes at intersections. The one exception is increased delay can be expected on the northbound Maine Street approach at Pleasant Street where one through lane is being eliminated. Level of service is estimated to be reduced from current D conditions to E with the change. I would note that my visual observations of the intersection noted that motorists tend to favor one travel lane and therefore the noted degradation in level of service may be overstated. To test this change the Town could easily close one of the lanes temporarily (through barrels and signage) and monitor conditions. I have worked with many communities in establishing monitoring programs to ensure the proposed change does not create unacceptable conditions (Other changes in the corridor could also be tested through a monitoring study).

- *The performance of the proposed turn lanes and adequacy of the queue lengths shown* – The traffic model indicates that adequate turn lane storage will be provided. This conclusion is based on 15-minute traffic volumes collected recently during the weekday PM peak hour. It should be noted that some of the dedicated left-turns that are "back-to-back" could be converted to a two-way left-turn and thus storage areas would be shared. Two such locations exist in the corridor, between Town Hall Place and Cumberland Street and between Gilman Avenue and Dunlap Street.

- *The impact of reducing the left-turn lanes from east-bound Pleasant Street to north-bound Maine Street from two to one lane* – The traffic model indicates the Maine Street/Pleasant Street intersection will operate at an unacceptable level of service following the change. With the elimination of one left turn lane on Pleasant Street, additional capacity pressure will be placed on the Maine Street approaches particularly the northbound approach. Two analyses were reviewed for assessing traffic operation in an in depth manner. According to Synchro, the intersection operates at level of service C under existing lane configurations. Level of service declines to E with the proposed changes. Some movements will decline to level of service F. In addition to Synchro, SimTraffic (a micro-simulation computer program) results were reviewed. SimTraffic conclusions indicate the Pleasant Street approach currently operates poorly and will continue to operate poorly. Overall intersection delays do increase with the change, although not significantly. Under existing conditions, the SimTraffic model allocated most of the left turning volume to a single left turn lane (unequal lane distribution) on the Pleasant Street approach. Field visits seem to support this assumption. Our general conclusion is that longer delays and queues can be expected during peak periods with the change, although in my professional opinion not a significant degradation is expected given existing lane usage.

- *The impact of having one lane on the ability to make left turns from intersecting side streets* – Longer delays can be expected from the side streets with the proposed changes. Left-turn movements from side streets are currently difficult today and according to the traffic model would worsen due to increased vehicle density and reduced gap frequency. The Lincoln Street/Bank Street intersection would incur significant delays with the change. The traffic model estimates significantly longer delays. My professional experience in the conversion of four-lane to three lane facilities is that the degradation is not as severe as the model predicts partly because vehicle speeds are reduced, which eases the ability to make left-turn maneuvers. I would note that as delays become problematic, motorists will alter their routing to avoid congested areas. In this case, I would expect left-turning vehicles to utilize parallel routes (Federal Street and Union Street), where possible. A shift in traffic volume can be expected.

- *Review the design for truck movements* – An Auto-turn analysis was conducted to ensure the proposed geometry will allow for adequate truck movements. Attached are graphics that illustrate truck movements at key constrained locations. For this analysis we have assumed use of a single-unit truck (WB-40). As noted on the attached graphics the following locations will have vehicle turning movement concerns.
    - Right turn movements from Bank Street will require the elimination of one parking space on Maine Street.
    - Right turn movements onto Bank Street will require reducing the corner curb extension. Additionally, the center island will need to be paint or of a mountable material.
    - Left-turns from Lincoln Street will require modifications to the center island and stop bar location. The island will need to be either paint or of a mountable material and the stop bar for the left-turn lane should be relocated away from the intersection. Details should be determined during final design.

- *Provide insight on bicycle-traffic interaction from an engineering perspective* – The proposed design does not provide specific bicycle accommodations. It does improve bicycle safety by adding additional space between the diagonal parking stalls and through traffic. With that said, diagonal parking does create a difficult environment for bicyclists. The good news is that vehicle speeds should be calmed and this should improve overall safety. Overall the plan improves bicycle safety. I would suggest that the following items for considered:
    - I do not support the installation of bicycle lanes for Maine Street given the head in diagonal parking configuration (I do prefer back-in angle parking from a bicyclist safety perspective). Given the need for extra separation space between bicyclist and parked vehicles, I do not believe sufficient space is available (some travel lanes could be reduced, but the added width would not provide a bicycle lane width that I would find safe).

- Shared Lane markings should be installed to help guide bicyclists to a safe area, away from the initial backing maneuvers of the diagonal parked vehicles. The exact location of the markings, including the white edge line, should be determined during final design.
- On the Pleasant Street approach, provisions for bicycles making a left-turn should be included. The dedicated right-turn lane does present some safety issues that should be addressed via pavement markings and signage. This should also be considered for Mason Street.
- In some cases curb extensions may constrain bicycle travel and as such should be designed accordingly. In my review of the plan, I did not identify locations where this was an issue, but this should be reviewed during final design.

- *Provide insight on pedestrian-traffic interaction from an engineering perspective* – Pedestrian safety will be improved with the plan. Reduced crossing distances, protected refuge spaces, reduce travel lanes, and slower vehicle speeds, will make Maine Street a safer and more inviting street for pedestrians. No specific adjustments, other than those outlined previously, are suggested. I would note that the Town recently installed raised crosswalks as part of calming traffic speeds. Although I haven't reviewed them in detail, it is important that advisory speed signs and warning pavement markings and signs be part of the installation. The final design should consider such features.

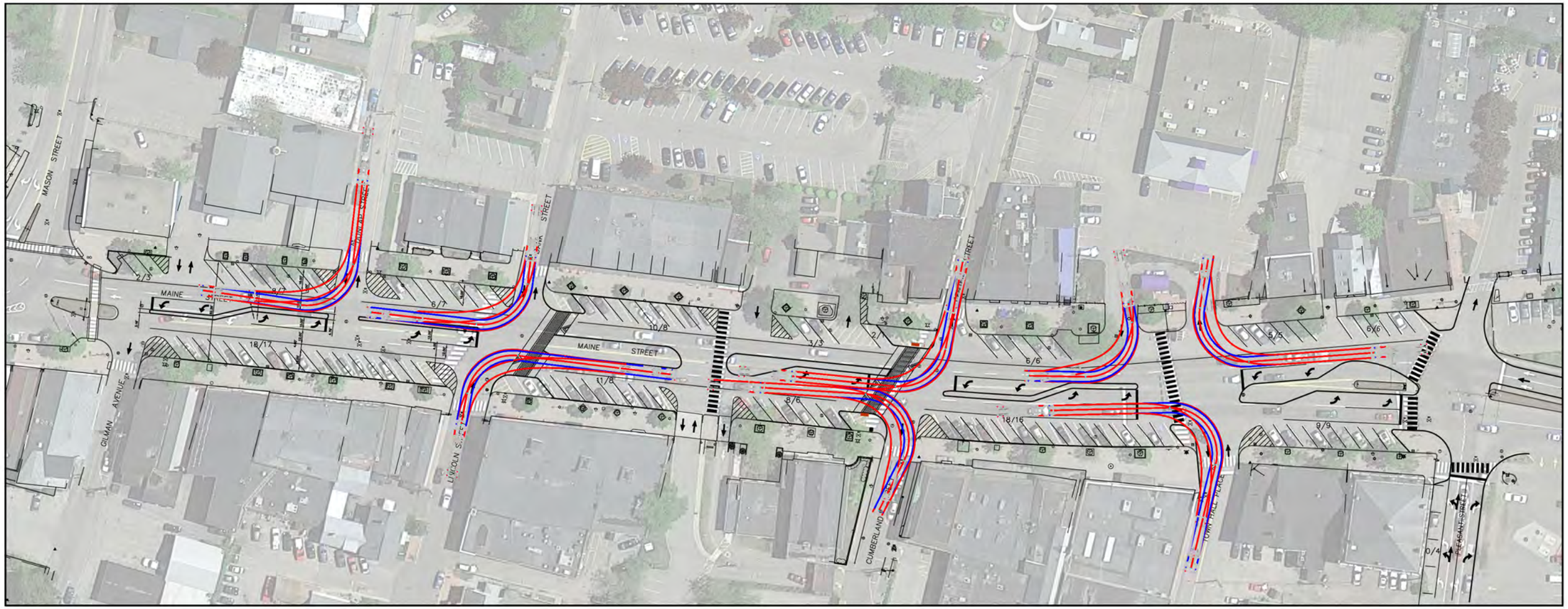
- Per your request I have reviewed the Technical Memorandum prepared by Michael Wallwork evaluating a roundabout intersection design at the Maine Street/Pleasant Street intersection. Mr. Wallwork evaluated both single and double lane roundabouts. To be compatible with the proposed Maine Street improvements, a single lane roundabout would be the only feasible option. His analysis indicates the intersection would work at a very acceptable level of service B, although long queues are projected for the northbound Maine Street approach. My general conclusion is that the proposed Maine Street improvements do not preclude the implementation of a roundabout, other than limiting the number of lanes and capacity (only one lane).

If you have any questions, please contact me.

Best regards,

Thomas A. Errico

Tom Errico, P.E.
Senior Associate
Traffic Engineering Director



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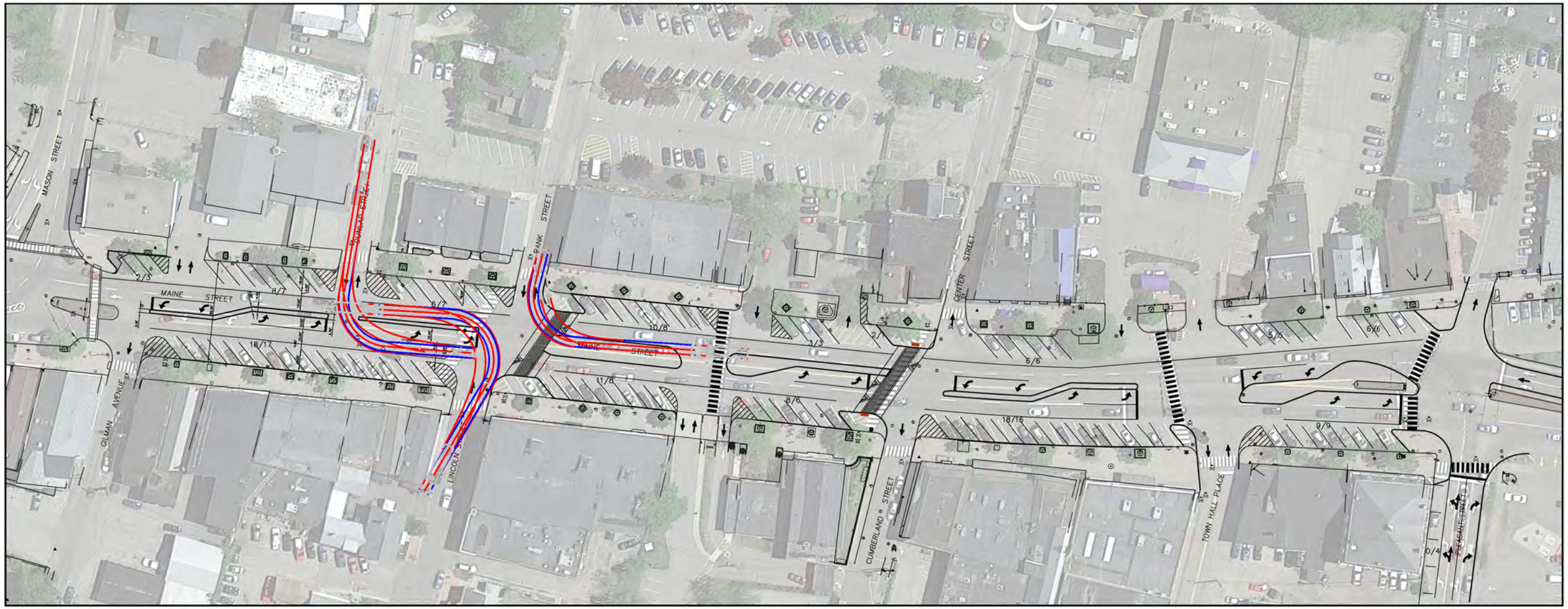
CHD BY: CYN	MAP/LOT:	
DATE: 02-22-13	FILE: 1699-08-SITEPLAN	RAISED-ISLAND



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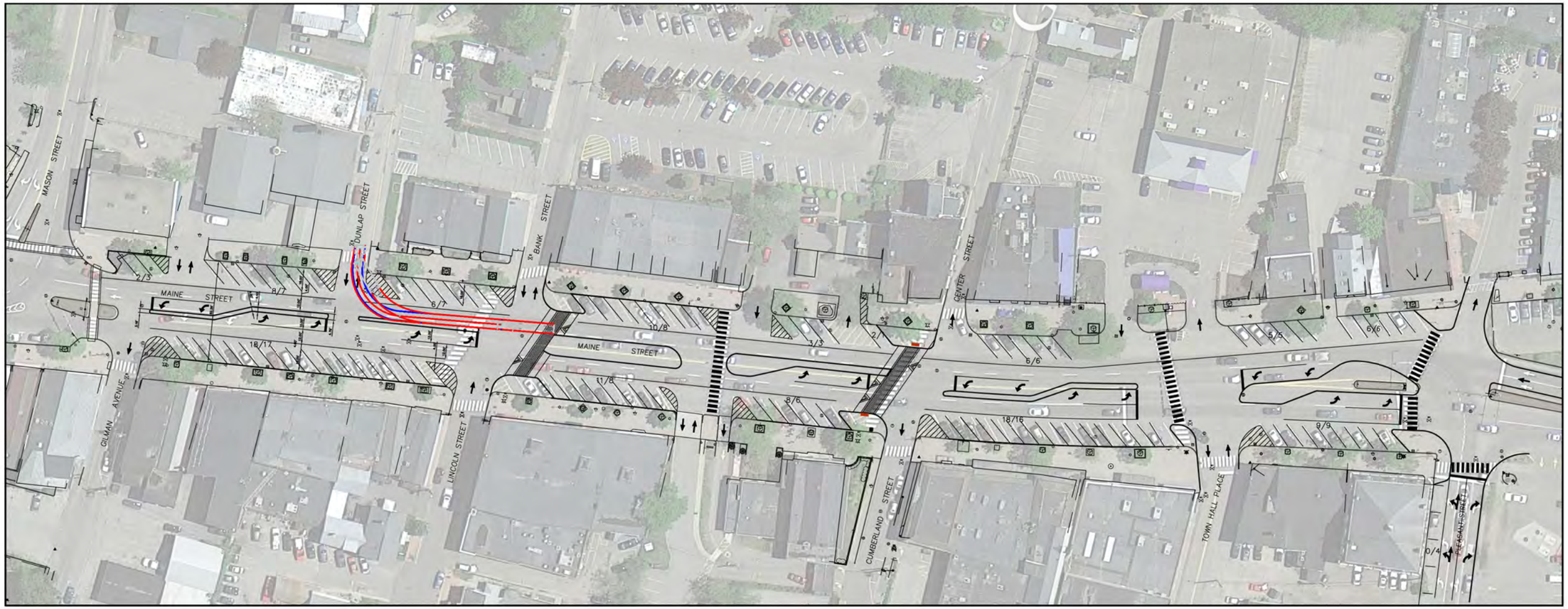

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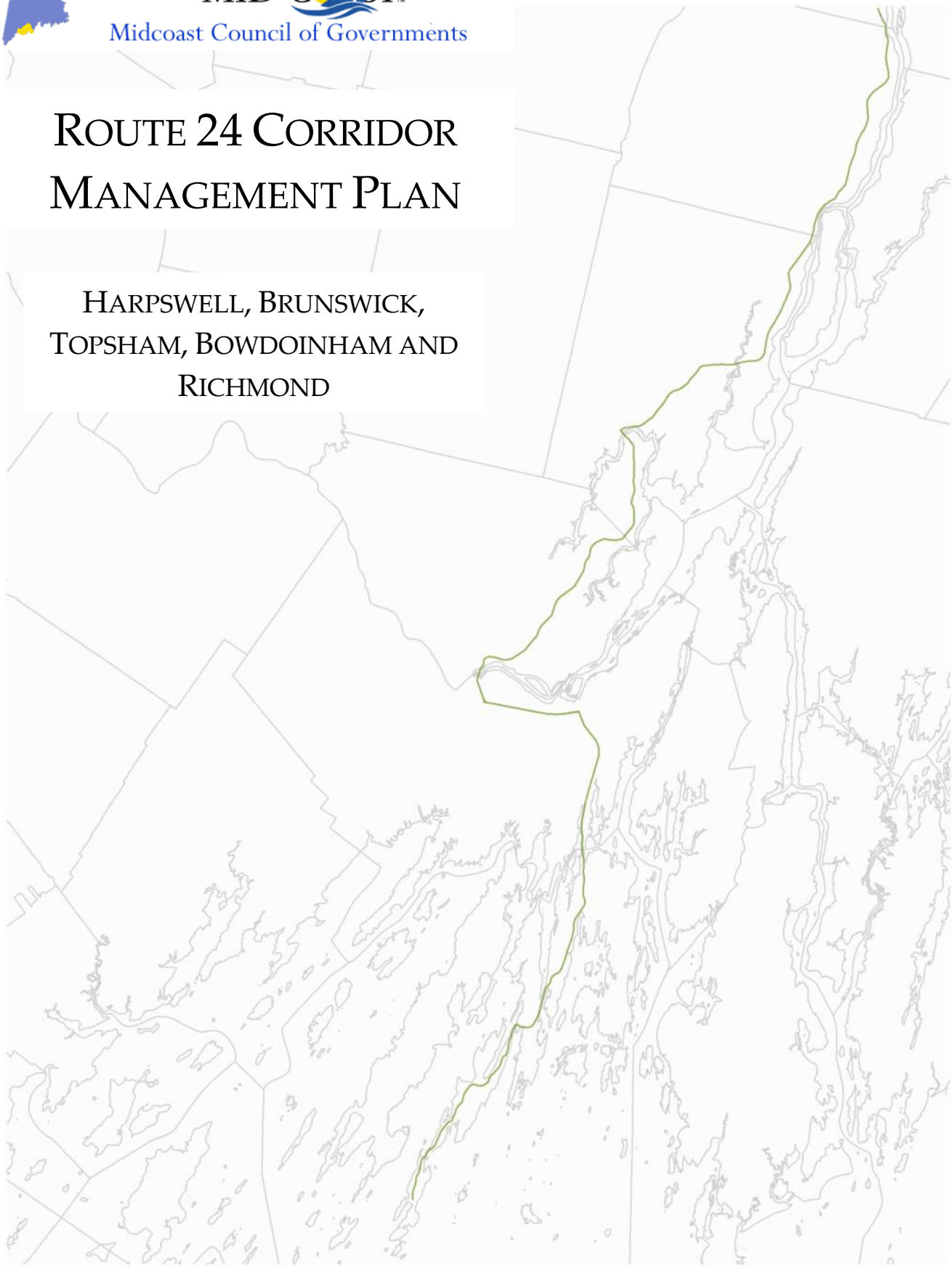
Midcoast Council of Governments

ROUTE 24 CORRIDOR MANAGEMENT PLAN

HARPSWELL, BRUNSWICK, TOPSHAM, BOWDOINHAM AND RICHMOND



June 27, 2013
FINAL DRAFT FOR
MUNICIPAL ENDORSEMENT

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DRAFT

I. Introduction

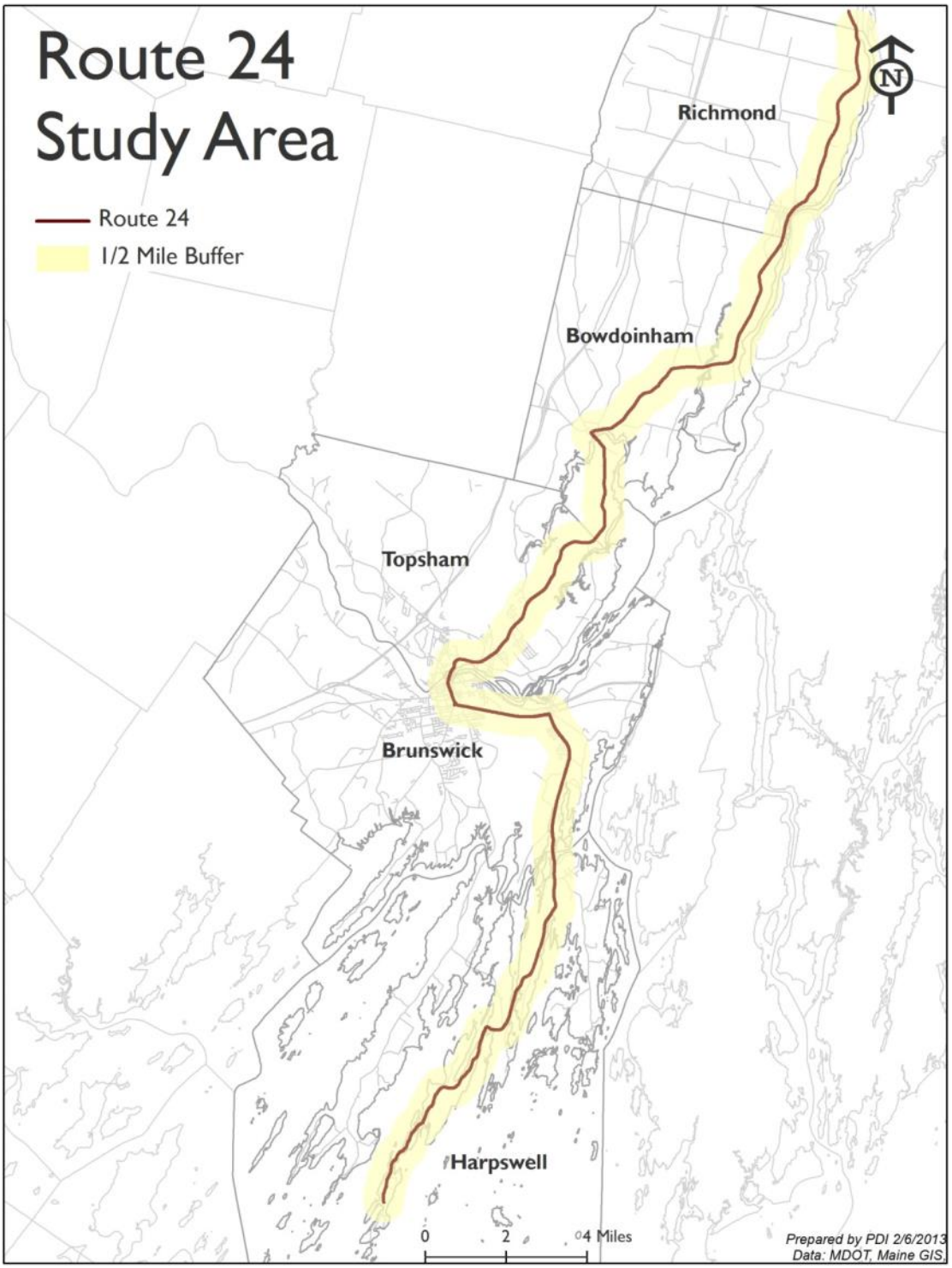
Connecting Maine, the state's long-range transportation plan (2008-2030), was developed by the Maine Department of Transportation (MaineDOT) with assistance from the 11 Regional Councils, including the Midcoast Council of Governments (MCOG). As part of the *Connecting Maine* planning process, the Regional Councils identified thirty-eight Corridors of Regional Economic Significance for Transportation (CRESTs). In the Midcoast region, Route 24 was identified as CREST Priority #2 (Route 1 was identified as Priority #1). The next step is to define "a prioritized list of transportation and other strategies that will meet the regional objectives of each Corridor of Regional Economic Significance."

In the fall of 2012, the Midcoast Council of Governments (MCOG) convened an advisory committee to develop a Corridor Plan for Route 24 from Harpswell to Richmond (see map of study area, Figure 1). The plan advisory committee met several times over the next several months to identify Route 24 issues and concerns, establish objectives for the corridor, develop strategies, and approve a regional plan for the corridor to submit to MaineDOT.

Members of the public were encouraged to speak with the plan advisory committee, which included town staff and officials from each of the five Route 24 communities in the region as well as other stakeholders recommended by the towns. There were specific opportunities for public participation at each stage of the process, publicized in local newspapers as well as locally by each town office.

The Route 24 Corridor Plan will guide MaineDOT investments in the future, and it is important to have a plan in place as funding becomes available. There is currently no specific budget allocated for plan implementation.

Figure 1


Route 24
Study Area
Route 24
1/2 Mile Buffer
Richmond
Bowdoinham
Topsham
Brunswick
Harpswell
N
0
2
4 Miles
Prepared by PDI 2/6/2013
Data: MDOT, Maine GIS

II. Purpose

The purpose of this corridor management plan is to define a prioritized list of transportation and other strategies that will meet the following regional objectives for Route 24, from Harpswell to Richmond:

1. Ensure safe travel for all corridor users, including vehicle drivers, pedestrians and bicyclists;
2. Maintain the capacity of the corridor;
3. Provide coordinated signage and marketing;
4. Address storm surge and future inundation, particularly with regard to emergency routes; and
5. Re-route Route 24 out of the downtowns of Brunswick and Topsham to remedy high traffic impacts, with consideration for Business 24 designation of the existing route in those towns.

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III. Process

In the fall of 2012, the Midcoast Council of Governments (MCOG) convened an advisory committee to develop a Corridor Plan for Route 24 from Harpswell to Richmond. Municipal officials from each of the five towns in the study area suggested potential committee members. The committee included the following community representatives:

Nicole Briand, Town Planner	Bowdoinham
Anna Breinich, Director of Planning and Development	Brunswick
Jim Howard, Route 24 Business Owner	Topsham
Richard Cromwell, Resident	Brunswick
William Wilkoff, Resident	Brunswick
Margo Knight, Town Councilor	Brunswick
Carol Eyerman, Town Planner	Harpswell
Kristi Eiane, Town Administrator	Harpswell
Ralph "Chip" Black, Route 24 Business Owner	Harpswell
Tony Barrett, Recreation Committee, Conservation Commission	Harpswell
Clarence ("Clancy") Cummins, Selectman	Richmond
Victoria Boundy, Dir. of Community and Business Development	Richmond
Tom Nugent, Planning Board	Richmond
Bruce Moore, Resident	Topsham
Wes Thames, Resident	Topsham
Cornell Knight, Town Manager	Topsham
Donald Russell, Selectman	Topsham
Richard Roedner, Planning Director	Topsham
Victor Langelo, Resident	Topsham
Bob Bruce, Merrymeeting Wheelers	Wiscasset

An initial public meeting to identify their issues and concerns was held on October 17, 2012 at Topsham Municipal Building. The meeting was publicized in local newspapers as well as locally by each town office.

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The plan advisory committee then met twice: first, to review data, further develop the list of issues and concerns that came out of the public meeting, and define a purpose and objectives for the plan; second, to identify potential strategies to meet the regional objectives. A third committee meeting was held in January to further refine the strategies and set short- and long-term priorities. A subsequent set of second public meetings was held in Spring 2013 for the public in each community to respond to the draft recommendations.

When the final plan has been approved by the advisory committee, it will be adopted by the Midcoast Council of Governments and submitted to MaineDOT for approval. The final plan will include endorsement by the municipalities, MCOG, and MaineDOT, and will outline how recommendations are to be implemented and establish a protocol for periodic review of progress.

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IV. Background: Demographics and Economic Data

A. Demographics

Between 2000 and 2010, the total population in the study area decreased slightly (Table IV-1). Most of this loss is likely due to the recent closure of the Brunswick Naval Air Station (BNAS). The BNAS closure resulted in a loss of approximately 3,400 jobs from 2006-2011.[1]

At the same time, Bowdoinham and Richmond both saw an increase in population.

Table IV-1: Total Population

	2000	2010	# Change	% Change
Brunswick, Cumberland County	21,172	20,278	-894	-4.2%
Harpswell, Cumberland County	5,239	4,740	-499	-9.5%
Bowdoinham, Sagadahoc County	2,612	2,889	277	10.6%
Richmond, Sagadahoc County	3,298	3,411	113	3.4%
Topsham, Sagadahoc County	9,100	8,784	-316	-3.5%
5 Towns combined	41,421	40,102	-1,319	-3.2%
Cumberland County, Maine	265,612	281,674	16,062	6.0%
Sagadahoc County, Maine	35,214	35,293	79	0.2%
Maine	1,274,923	1,328,361	53,438	4.2%

Source: US Census

There was a significant drop in working age (25-44) population in all five downs, possibly due to the BNAS closure (Table IV-2). There was an increase in the 45+ population, but not enough to make up for the loss of under 45 (Table IV-2).

Table IV-2: Population by Age

	Under 25			25-44			45-64			65 and over		
	2000	2010	*% Change*	2000	2010	*% Change*	2000	2010	*% Change*	2000	2010	*% Change*
Harpswell	1,280	932	*-27.2%*	1,315	800	*-39.2%*	1,659	1,778	*7.2%*	985	1,230	*24.9%*
Brunswick	7,864	6,763	*-14.0%*	5,702	4,224	*-25.9%*	4,334	5,606	*29.3%*	3,272	3,685	*12.6%*
Topsham	3,071	2,300	*-25.1%*	2,945	2,060	*-30.1%*	1,940	2,771	*42.8%*	1,144	1,653	*44.5%*
Bowdoinham	828	796	*-3.9%*	787	710	*-9.8%*	733	1,017	*38.7%*	264	366	*38.6%*
Richmond	1,105	969	*-12.3%*	1,014	876	*-13.6%*	834	1,089	*30.6%*	345	477	*38.3%*
5 Towns	*14,148*	*11,760*	*-16.9%*	*11,763*	*8,670*	*-26.3%*	*9,500*	*12,261*	*29.1%*	*6,010*	*7,411*	*23.3%*

Source: US Census

[1] http://www.mrra.us/images/Understanding_the_Impacts_SPO.pdf

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B. *Housing*

Despite the loss in total population, the number of housing units in the study area increased between 2000 and 2010 (Table IV-3.) The result was a decrease in average household size (Table IV-4).

Table IV-3: Housing Units

	2000	2010	# Change	# Change
Harpswell	3,701	4,208	507	13.7%
Brunswick	8,720	9,599	879	10.1%
Topsham	3,573	4,167	594	16.6%
Bowdoinham	1,107	1,279	172	15.5%
Richmond	1,475	1,629	154	10.4%
5 Towns combined	18,576	20,882	2,306	12.4%

Source: US Census

Table IV-4: Average Household Size

	2000	2010
Harpswell	2.24	2.13
Brunswick	2.34	2.19
Topsham	2.62	2.32
Bowdoinham	2.54	2.45
Richmond	2.54	2.39

Source: US Census

C. *Employment*

Total average employment in the study area is lower in 2011 than it was in 2001, although it is up in Richmond and Topsham (Table IV-5). Professional and technical services employment is down, as is administrative services. Employment in the health care and social assistance sector is up significantly, as well as retail trade.

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Table IV-5: Average Employment

	2001							2011						
	Bruns-wick	Harps-well	Bowdoin-ham	Rich-mond	Top-sham	5 Towns	% of Total	Bruns-wick	Harps-well	Bowdoin-ham	Rich-mond	Top-sham	5 Towns	% of Total
Total, All Industries	12,376	559	231	493	3,042	16,701		11,194	458	190	691	3,636	16,169	
Agriculture, Forestry, Fishing	17	14				31	*0.2%*		21	17			38	*0.2%*
Utilities	81					81	*0.5%*	69					69	*0.4%*
Construction	401	94	24	49	303	871	*5.2%*	291	57	26	155	266	795	*4.9%*
Manufacturing	724				160	884	*5.3%*	491			65	100	656	*4.1%*
Wholesale Trade	62	19			67	148	*0.9%*	72	13	15		33	133	*0.8%*
Retail Trade	2,242	58	31	70	446	2,847	*17.0%*	1,935	59	40	69	1,014	3,117	*19.3%*
Transportation and Warehousing	114				28	142	*0.9%*	129			20	36	185	*1.1%*
Information	279					279	*1.7%*	214					214	*1.3%*
Finance and Insurance	519			16	17	552	*3.3%*	376			14	59	449	*2.8%*
Real Estate	175	8			16	199	*1.2%*	177	20			27	224	*1.4%*
Professional & Technical Services	851	18	14	17	217	1,117	*6.7%*	364	14	13	37	259	687	*4.2%*
Management of Companies	15					15	*0.1%*	61					61	*0.4%*
Administrative & Waste Services	453			20	430	903	*5.4%*	430	23		15	88	556	*3.4%*
Educational Services	1,674					1,674	*10.0%*	1,727					1,727	*10.7%*
Health Care and Social Assistance	2,359	23		37	321	2,740	16.4%	2,922			65	450	3,437	21.3%
Arts, Entertainment, Recreation	389	19			68	476	2.9%	245	34			20	299	1.8%
Accommodation & Food Services	1,055	138			312	1,505	9.0%	1,119			45	443	1,607	9.9%
Other Services, Except Public Adm	434	10	17	5	101	567	3.4%	354	20	13		151	538	3.3%
Public Administration					76	76	0.5%							

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Tables IV-6 and IV-7 present the major employers in Sagadahoc and Cumberland Counties in 2012.

Table IV-6: Top 25 Employers in Sagadahoc County, 2012

Employer Name	City	Employment Range	Business Description
Bath Iron Works Corporation	Bath	5,001 to 5,500	Ship building and repairing
Seacoast Management	Various	1 to 500	Assisted living facilities for the elderly
Computer Sciences Corporation	Topsham/Bath	1 to 500	Computer facilities management services
Reed & Reed Inc	Woolwich	1 to 500	Highway, street, and bridge construction
Hannaford Bros Co		1 to 500	Supermarkets and other grocery stores
Target Corporation		1 to 500	Discount department stores
Harry C Crooker & Sons Inc	Topsham	1 to 500	Highway, street, and bridge construction
Home Depot Usa Inc		1 to 500	Home centers
Shaws Supermarkets Inc		1 to 500	Supermarkets and other grocery stores
Providence Service Corporation	Bath	1 to 500	Child and youth services
Hyde School	Bath	1 to 500	Elementary and secondary schools
Bath Area Family Y M C A	Bath	1 to 500	Civic and social organizations
Hillhouse Inc	Bath	1 to 500	Assisted living facilities for the elderly
Elmhurst Inc	Bath	1 to 500	Vocational rehabilitation services
Bath Savings Institution	Bath	1 to 500	Savings institutions
Independence Association Inc	Topsham	1 to 500	Vocational rehabilitation services
Wright Pierce	Topsham	1 to 500	Engineering services
Sebasco Harbor Resort Llc	Phippsburg	1 to 500	Hotels and motels, except casino hotels
F H C Inc	Bowdoin	1 to 500	Electromedical apparatus manufacturing
Acadia Auto Auctions	Richmond	1 to 500	Wholesale trade agents and brokers
Sea Dog Ventures Inc	Topsham	1 to 500	Full-service restaurants
Little Caesars		1 to 500	Limited-service restaurants
Waltz Long Term Care Pharmacy	Topsham	1 to 500	Pharmacies and drug stores
Kindred Nursing Centers West Llc	Bath	1 to 500	Nursing care facilities, skilled nursing
Advance Auto Sales Inc	Topsham	1 to 500	New car dealers

Source: Maine Department of Labor

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Table IV-7: Top 25 Employers in Cumberland County, 2012

Employer Name	City	Employment Range	Business Description
Maine Medical Center	Portland	6,001 to 6,500	General medical and surgical hospitals
Ll Bean Inc	Freeport	3,001 to 3,500	Retail sales
Unum Provident	Portland	2,501 to 3,000	Direct life insurance carriers
Hannaford Bros Co		2,501 to 3,000	Supermarkets and other grocery stores
Mercy Hospital	Portland	1,501 to 2,000	General medical and surgical hospitals
Wal Mart / Sam's Club		1,001 to 1,500	Discount department stores
T D Banknorth N A		1,001 to 1,500	Commercial banking
Bowdoin College	Brunswick	1,001 to 1,500	Colleges and universities
Mid Coast Hospital	Brunswick	1,001 to 1,500	General medical and surgical hospitals
Shaws Supermarkets Inc		501 to 1,000	Supermarkets and other grocery stores
Idexx Laboratories Inc	Westbrook	501 to 1,000	Pharmaceutical preparation manufacturing
Attendant Services Inc	So Portland	501 to 1,000	Services for the elderly and disabled
Martins Point Health Care Center	Portland	501 to 1,000	Offices of physicians, except mental health
Fairchild Semiconductor Corp	So Portland	501 to 1,000	Semiconductors and related device mfg
Family Practice Center		501 to 1,000	Offices of physicians, except mental health
Goodwill Industries Of Northern NE		501 to 1,000	Vocational rehabilitation services
Wright Express Corporation	So Portland	501 to 1,000	Financial transaction processing and clearing
Fairpoint Communications		501 to 1,000	Telemarketing and other contact centers
Time Warner Entertainment Co L P		501 to 1,000	Wired telecommunications carriers
Spurwink Services Incorporated	Portland	501 to 1,000	Other individual and family services
S D Warren	Westbrook	501 to 1,000	Paper, except newsprint, mills
Texas Instruments Incorporated	Portland	501 to 1,000	Semiconductors and related device mfg
Anthem Health Systems Inc		501 to 1,000	Direct health and medical insurance carriers
Lowes Home Centers Inc		501 to 1,000	Home centers
Idexx Operations Corp	Westbrook	1 to 500	Druggists' goods merchant wholesalers

Source: Maine Department of Labor

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D. Commute Data

35.8% of total employed residents of the study area (Harpswell, Brunswick, Topsham, Bowdoinham and Richmond) work in the study area (6,186 of 17,267) (Table IV-8).

Table IV-8: 2010 Commute Data

	Live in Harpswell, Work In…	Live in Brunswick, Work In…	Live in Topsham, Work In…	Live in Bowdoinham, Work In…	Live in Richmond, Work In…
Harpswell	174	41	29	5	11
Brunswick	395	2,592	861	236	148
Topsham	140	405	666	134	80
Bowdoinham	5	18	15	42	19
Richmond	0	9	11	21	129
Other	977	5,127	2,819	930	1,228
% 5 Towns	*42.2%*	*37.4%*	*35.9%*	*32.0%*	*24.0%*

In 2010 the vast majority of workers in the study area continue to drive alone to work, although an increased number walked or took a taxi, bicycle, motorcycle or other means compared to 2000 (Table IV-9). There was a decrease in people who took public transit from 2000 to 2010.

Table IV-9: Means of Transportation to Work (5 Town Study Area)

	2000*	*% of Total*	2010**	*% of Total*	# Change, 2000 -2010	% Change, 2000 -2010
Car, truck, or van - drove alone	15,441	*76.6%*	15,113	*74.6%*	-328	-2.1%
Car, truck, or van - carpooled	2,229	*11.1%*	2,197	*10.8%*	-32	-1.4%
Public transportation (excluding taxicab)	133	*0.7%*	60	*0.3%*	-73	-54.9%
Walked	1,235	*6.1%*	1,383	*6.8%*	148	12.0%
Taxicab, motorcycle, bicycle, or other means	198	*1.0%*	614	*3.0%*	416	210.1%
Worked at home	927	*4.6%*	898	*4.4%*	-29	-3.1%
Total	20,163		20,265		102	0.5%

*US Census
**ACS 5-Year Sample

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V. Transportation & Infrastructure

A. Traffic Counts and Crash Locations

Route 24 is a ***major urban collector*** (state aid road). Collectors link smaller towns and neighborhoods to the regional transportation network. A road's function is determined by MaineDOT based on a number of factors, including land use (business or residential or agricultural), annual average daily traffic (AADT), trip length, and how the road fits into the larger road network.

Harpswell and Bowdoinham have the most Route 24 road miles of the 5 towns in the study area (Table V-1).

Table V-1: Route 24 Road Length by Town (Study Area)

	Length (in miles)
Harpswell	10.57
Bowdoinham	10.43
Brunswick	7.18
Richmond	5.79
Topsham	5.16
Total	**39.13**

Traffic counts have been decreasing everywhere except Richmond (Table V-2, Figure 2). The steep drop-off in Brunswick may be attributable to the BNAS closure.

Table V-2: Historic Vehicle Traffic Counts, 2000-2011

	2000	**2005**	**2010**	**2011**	**% Change 2000-2011**
Harpswell	3,079	3,030	2,870	2,820	-8.4%
Brunswick	15,782	15,068	11,622	10,584	-32.9%
Topsham	7,153	7,158	7,068	6,768	-5.4%
Bowdoinham	1,745	1,527	1,434	1,397	-19.9%
Richmond	1,955	2,271	2,237	2,081	6.4%

Source: MDOT

High Crash Locations are locations where there have been eight or more accidents in a three-year time period. All three of the Route 24 High Vehicle Crash Locations in the study area are in Brunswick at two intersections: 1) the Corner of Bath Road and Gurnet

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Road (Cook's Corner) and 2) the intersection of Route 1 and Maine Street (Table V-3, Figure 3).

Table V-3: Vehicle High Crash Locations, 2009-2011 (see map)

Total Crashes	LOCATION
8	Int of BATH RD, THOMAS POINT RD
14	Int of US-1 NB TO COOKS COR, US-1 SB TO COOKS COR
13	Int of BOW ST, MAINE ST, US-1 SB OFF RAMP

Source: MDOT

Figure 4 presents the locations of known pedestrian and bicycle locations on Route 24 between 2003-2012. Figure 5 presents Route 24 speed limits.

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Figure 2

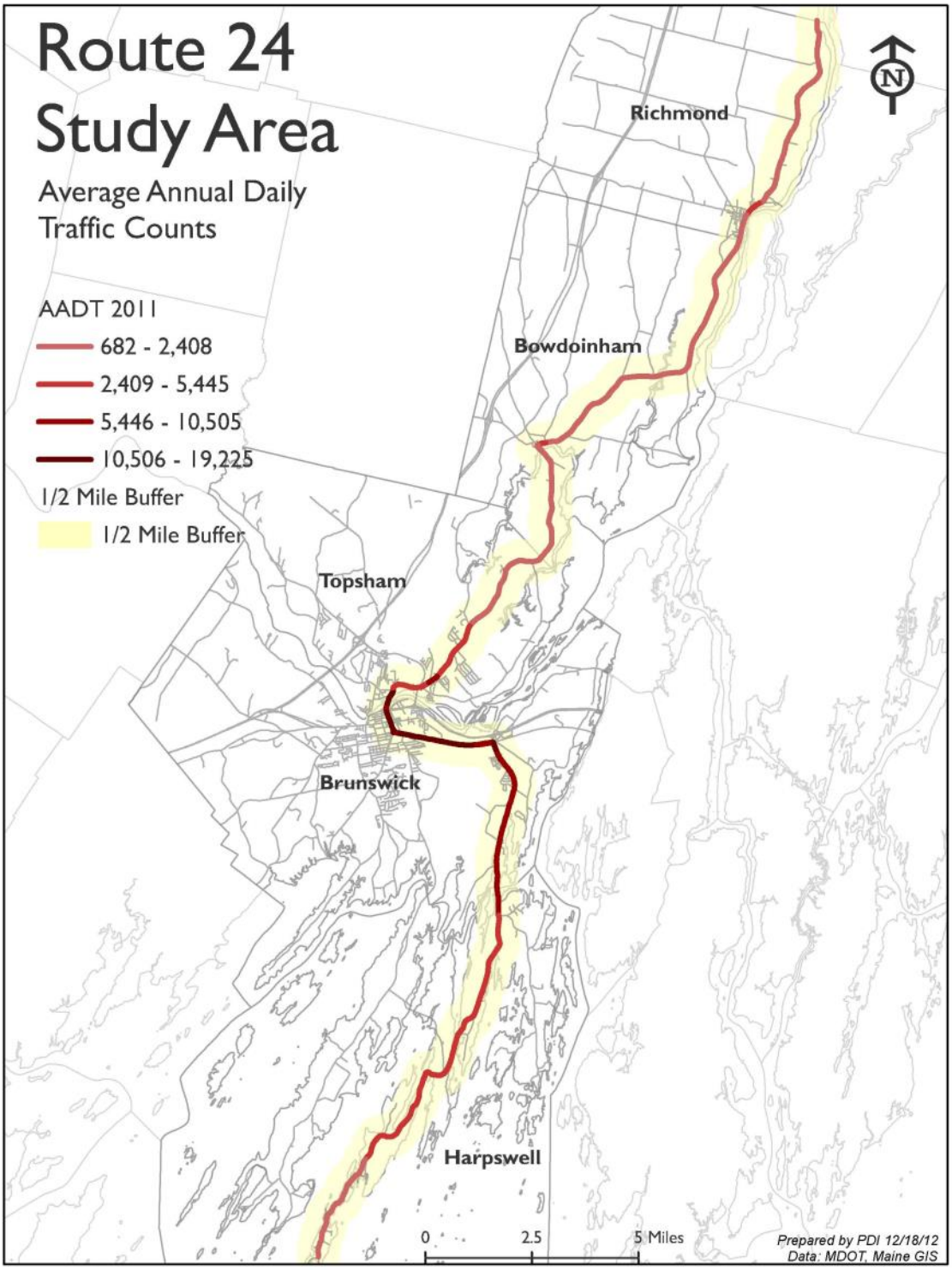

Route 24
Study Area
Average Annual Daily
Traffic Counts
AADT 2011
682 - 2,408
2,409 - 5,445
5,446 - 10,505
10,506 - 19,225
1/2 Mile Buffer
1/2 Mile Buffer
Richmond
Bowdoinham
Topsham
Brunswick
Harpswell
0
2.5
5 Miles
Prepared by PDI 12/18/12
Data: MDOT, Maine GIS

Figure 3

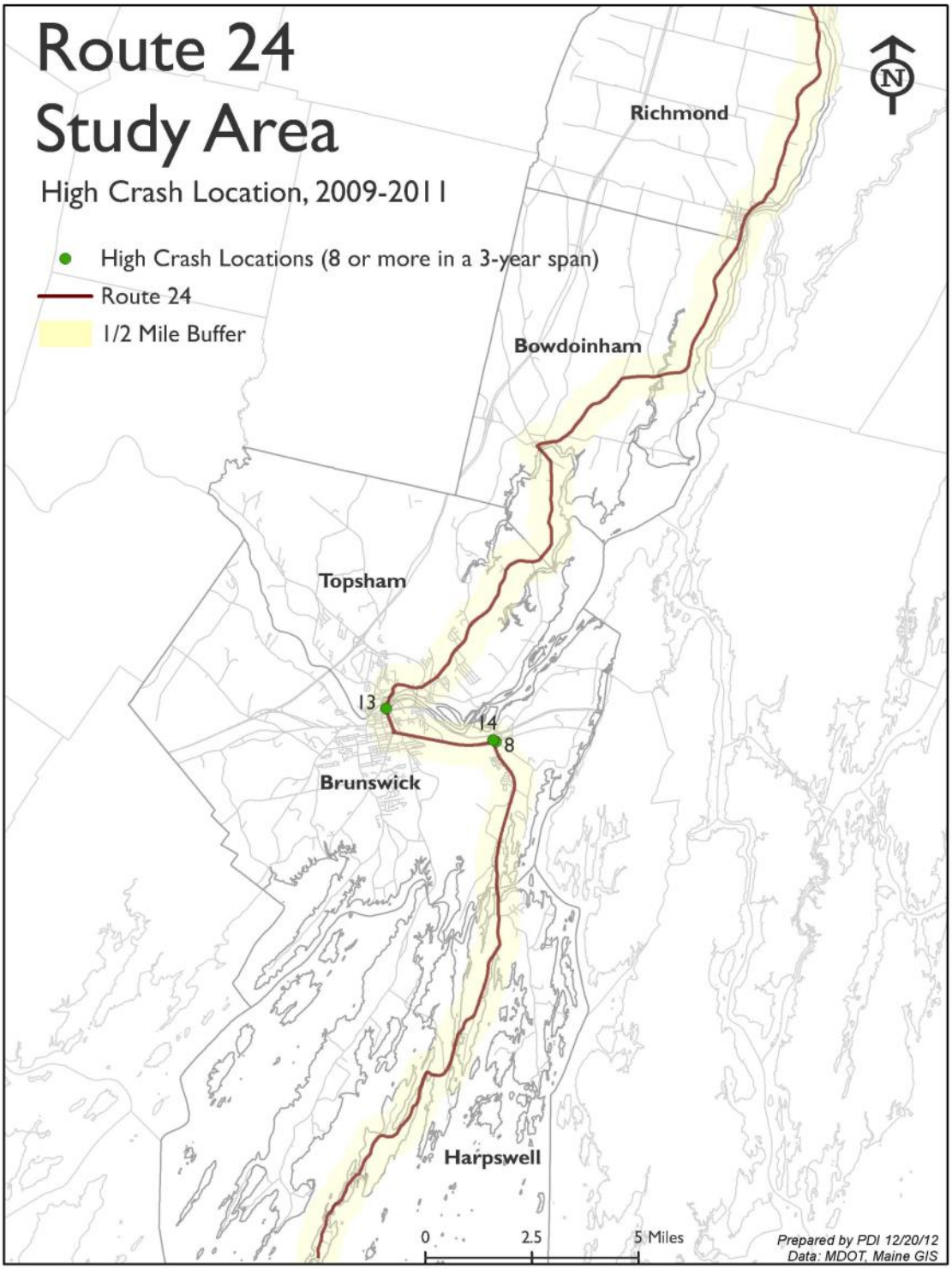

Route 24
Study Area
High Crash Location, 2009-2011
High Crash Locations (8 or more in a 3-year span)
Route 24
1/2 Mile Buffer
Richmond
Bowdoinham
Topsham
Brunswick
Harpswell
13
14
8
0
2.5
5 Miles
Prepared by PDI 12/20/12
Data: MDOT, Maine GIS

Figure 4

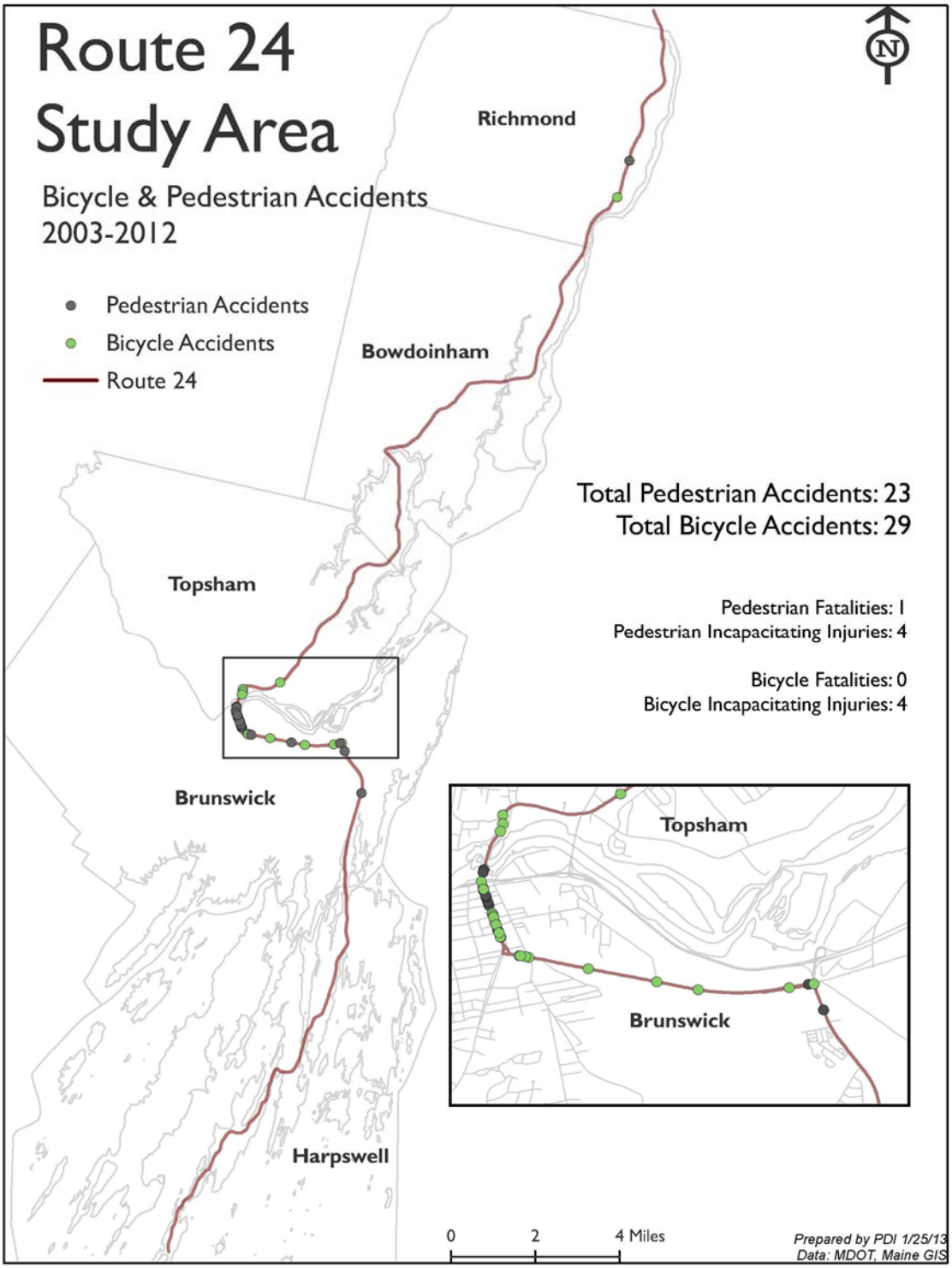
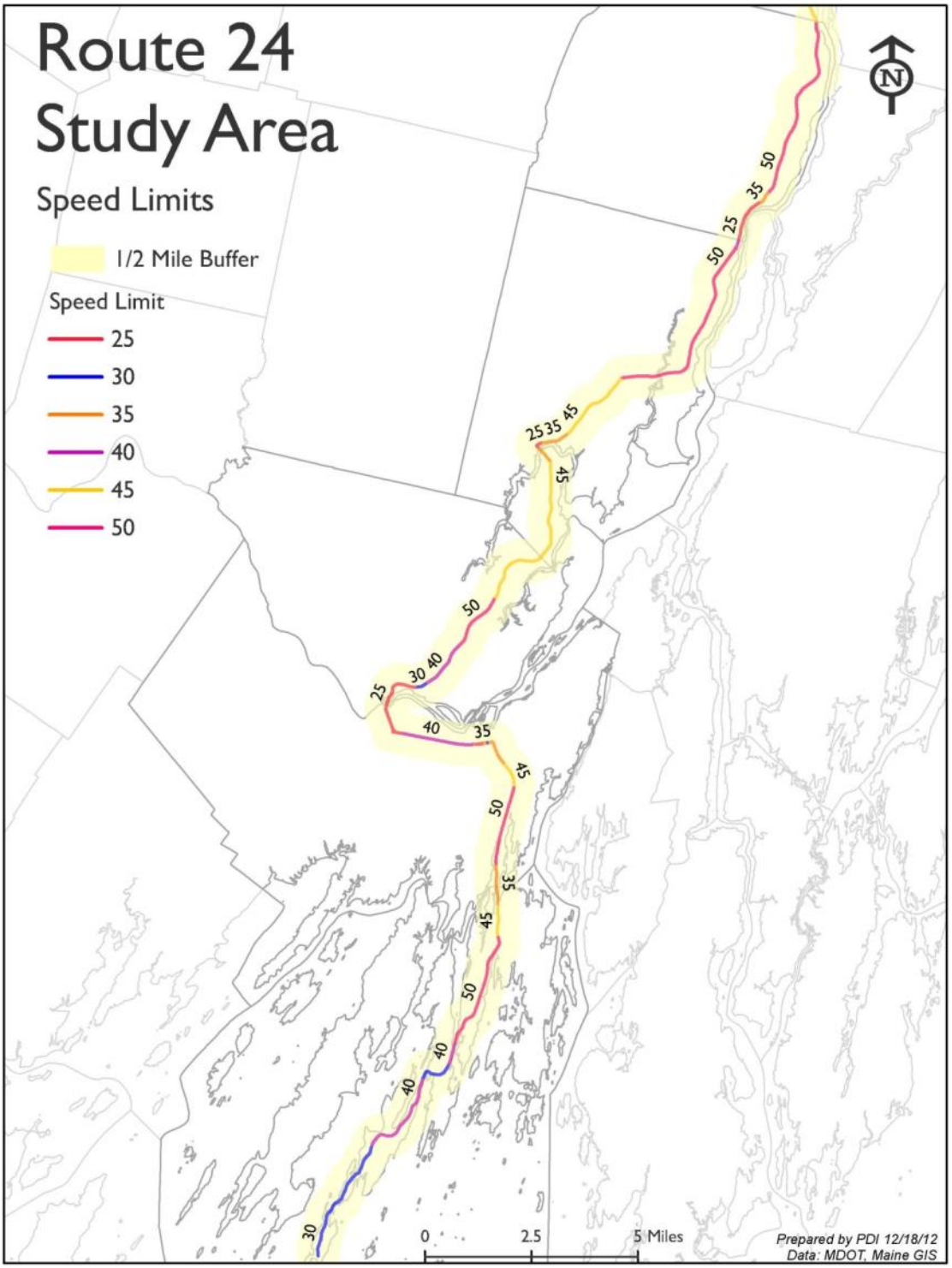

Route 24
Study Area
Bicycle & Pedestrian Accidents
2003-2012
Pedestrian Accidents
Bicycle Accidents
Route 24
Richmond
Bowdoinham
Topsham
Brunswick
Harpswell
Total Pedestrian Accidents: 23
Total Bicycle Accidents: 29
Pedestrian Fatalities: 1
Pedestrian Incapacitating Injuries: 4
Bicycle Fatalities: 0
Bicycle Incapacitating Injuries: 4
Topsham
Brunswick
0
2
4 Miles
Prepared by PDI 1/25/13
Data: MDOT, Maine GIS

Figure 5


Route 24
Study Area
Speed Limits
1/2 Mile Buffer
Speed Limit
25
30
35
40
45
50
N
0
2.5
5 Miles
Prepared by PDI 12/18/12
Data: MDOT, Maine GIS

B. MaineDOT Condition and Safety Scores

MaineDOT has adopted a "framework for managing Maine's highway system based on highway corridor priorities (HCP) and customer service levels (CSL)."

Route 24 is a priority 4 corridor.

Table V-4: MaineDOT Priority Levels

	Definition
Priority 1 Roads	These roads include the Maine Turnpike, the interstate system and key principal arterials like Route 1 in Aroostook County, the Airline (Route 9), Route 2 west of Newport, and Route 302. The 1,400 miles of Priority 1 roads represent only 7 percent of the miles, but carry fully 40 percent of all vehicle miles traveled in Maine.
Priority 2 Roads	These roads total about 940 miles. They are non-interstate, high value arterials that represent about 4 percent of the total miles of road but carry 11 percent of overall traffic.
Priority 3 Roads	These roads generally are the remaining arterials and most significant major collector highways. These 2,050 miles represent only 9 percent of miles, but carry 19 percent of the traffic.
Priority 4 Roads	These roads generally are the remainder of the major collector highways, often also part of Maine's unique state aid system, in which road responsibilities are shared between the state and municipalities. These 1,900 miles represent about 8 percent of total miles, and carry 10 percent of the traffic.
Priority 5 Roads	These roads are 2,500 miles of minor collector highways, almost all on the state aid system. They represent 11 percent of miles, but carry only 7 percent of traffic.
Priority 6 Roads	These roads are local roads and streets, and are the year-round responsibility of our municipal partners. Though they carry just 13 percent of the statewide traffic, these 14,300 miles make up 61 percent of the total miles.

Source: MaineDOT

The customer service level includes three considerations: safety, condition and serviceability, and grades them similar to a report card (A – F). Table V-5 below defines the measures that make up the overall service level grade. Route 24 Customer Service Level Scores (safety, condition and service) in the study area are presented in Figures 6-

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11 on the following pages. Figure 12 presents Route 24 safety scores and high crash location together.

Table V-5: MaineDOT Customer Service Levels

Customer Service Level	Category	Definition
Crash History	Safety	This measure includes the two types of motor vehicle crashes most likely related to the highway- head-on and run-offroad crashes. The A-F scale compares these crash rates with the statewide average.
Paved Roadway Width	Safety	This measure compares total paved width (lane plus shoulder) with minimum acceptable widths by Highway Corridor Priority (not new design standards). If a highway segment fails this minimum, the Safety Customer Service Levels for that segment is decreased one letter grade.
Pavement Rutting	Safety	This measure looks at wheelpath rutting, since excessive rutting holds water and contributes to hydroplaning and icing in winter. The A-F scale set points vary by Highway Corridor Priority, and are based on hydroplane tests.
Bridge Reliability	Safety	This measure is pass/fail. If a highway segment contains a bridge with a Condition Rating of 3 or less (excluding non-overpass decks), the Safety Customer Service Level is decreased one letter grade. These bridges are safe, but may require increased inspection or remedial work that could affect traffic flow.
Pavement Condition	Condition	This measure uses the Pavement Condition Rating (PCR), a 0-5 scale that is composed of International Roughness Index, rutting, and two basic types of cracking. The A-F scale varies by Highway Corridor Priority.
Roadway Strength	Condition	This measure uses the results of the falling weight deflectometer, a device that estimates roadway strength. The A-F scale is uniform across Highway Corridor Priority, since even low-priority roads must support heavy loads in Maine's natural resource-based economy.

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Bridge Condition	Condition	This measure converts the 0-9 national bridge inventory (NBI) condition ratings to pass or fail; it is uniform across Highway Corridor Priority.
Ride Quality	Condition	This measure uses the International Roughness Index (IRI), which is expressed in inches per mile of deviation. IRI is the nationally accepted standard for passenger comfort, and the A-F scale varies by Highway Corridor Priority.
Posted Road	Service	Each year, MaineDOT posts more than 2,000 miles of road during spring thaw to protect their longevity, but some posted roads directly affect Maine's economy. Road segments that are permanently posted get a D, those with seasonal postings get a C.
Posted Bridge	Service	This measure uses load weight restrictions to arrive at an A-F score that varies by Highway Corridor Priority.
Congestion	Service	This measure uses the ratio of peak traffic flows to highway capacity to arrive at an A-F score for travel delay. Peak summer months are specifically considered to capture impacts to Maine's tourism industry. This scale is uniform across Highway Corridor Priority, since tourist travel is system-wide and sitting in traffic affects customer service similarly on all roads.

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Figure 6

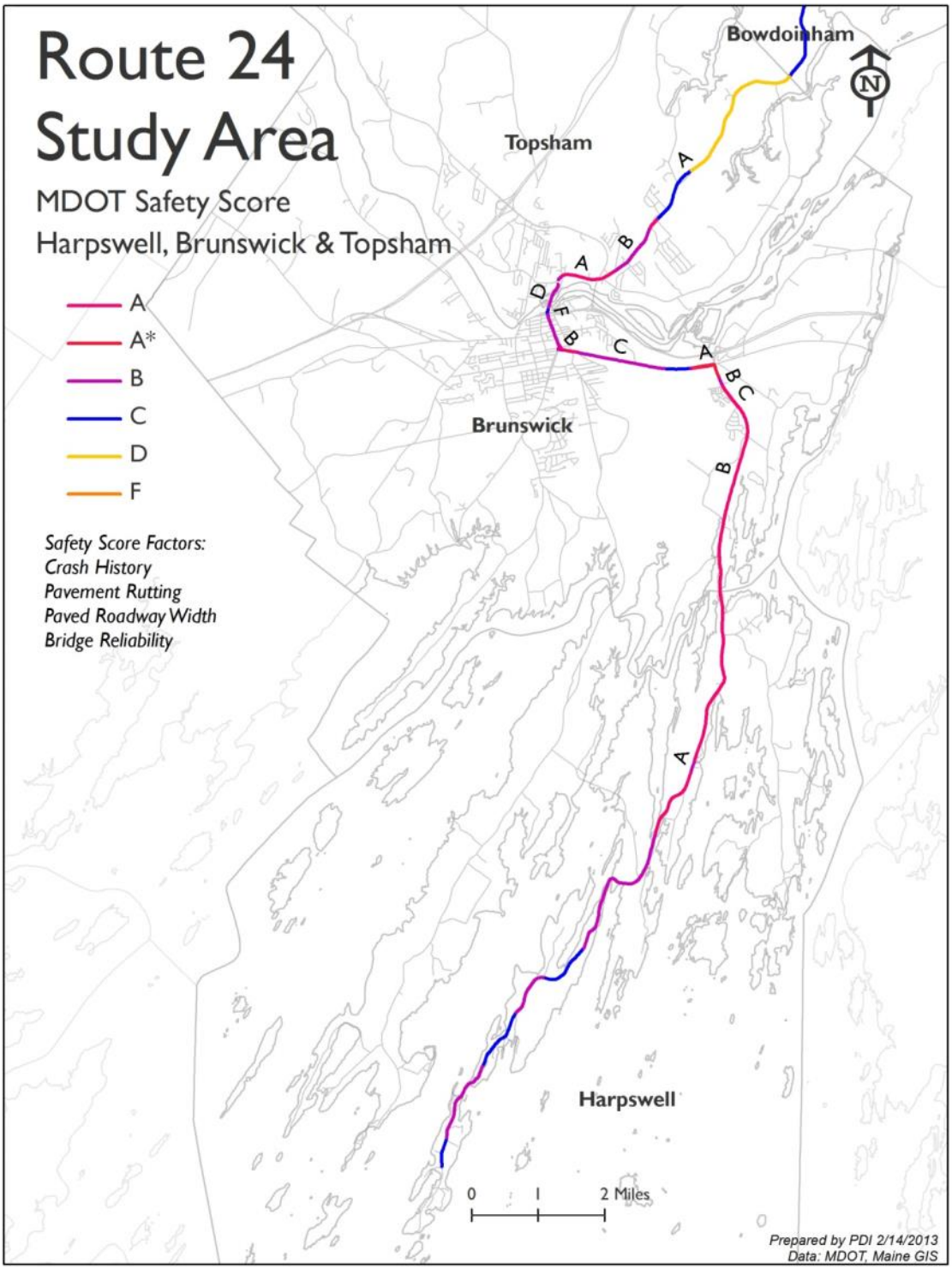

Route 24
Study Area
MDOT Safety Score
Harpswell, Brunswick & Topsham
A
A*
B
C
D
F
Safety Score Factors:
Crash History
Pavement Rutting
Paved Roadway Width
Bridge Reliability
Bowdoinham
Topsham
Brunswick
Harpswell
N
0
1
2 Miles
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Figure 7

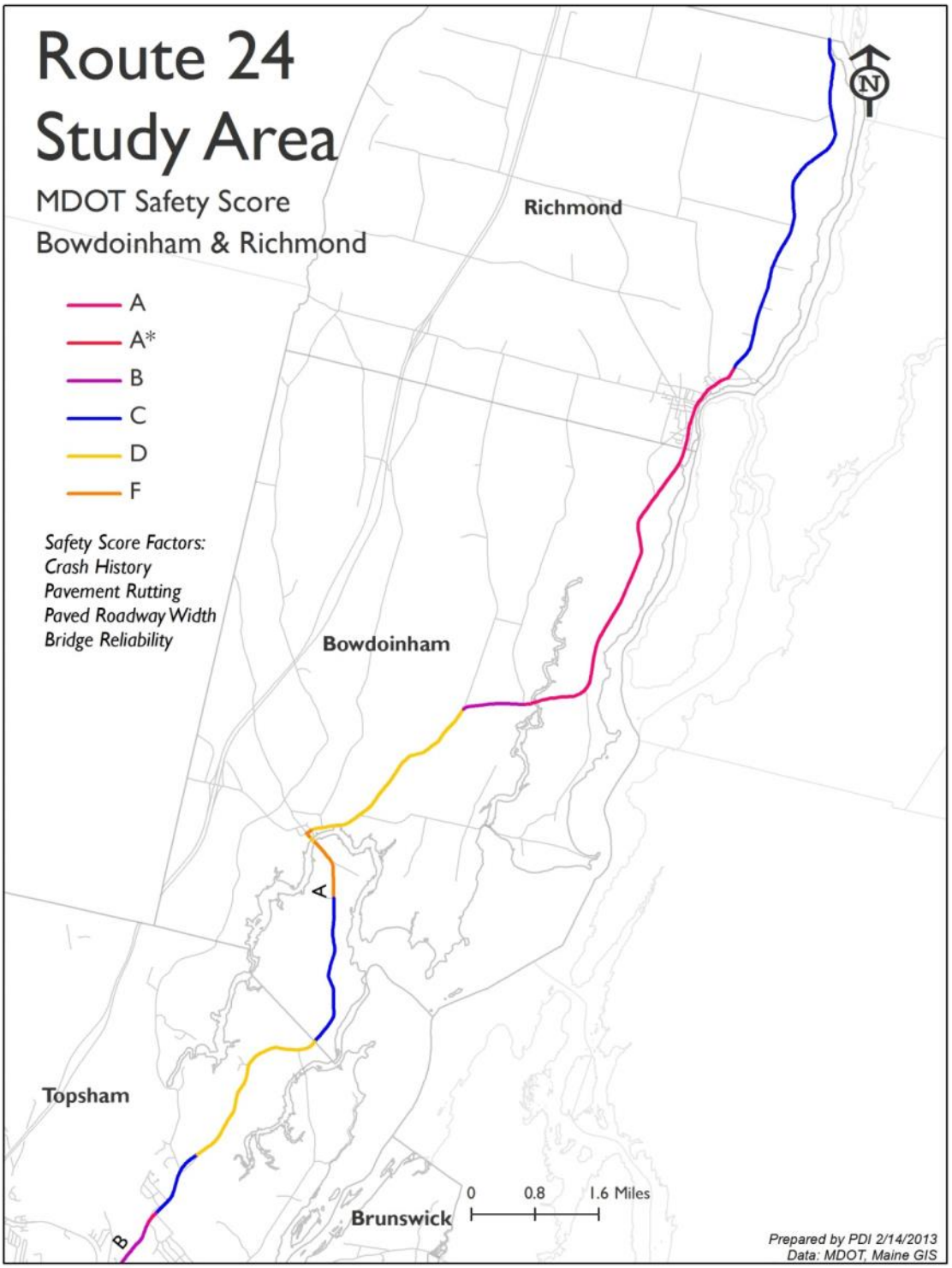

Route 24
Study Area
MDOT Safety Score
Bowdoinham & Richmond
A
A*
B
C
D
F
Safety Score Factors:
Crash History
Pavement Rutting
Paved Roadway Width
Bridge Reliability
Richmond
Bowdoinham
Topsham
Brunswick
A
B
0
0.8
1.6 Miles
N
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Figure 8

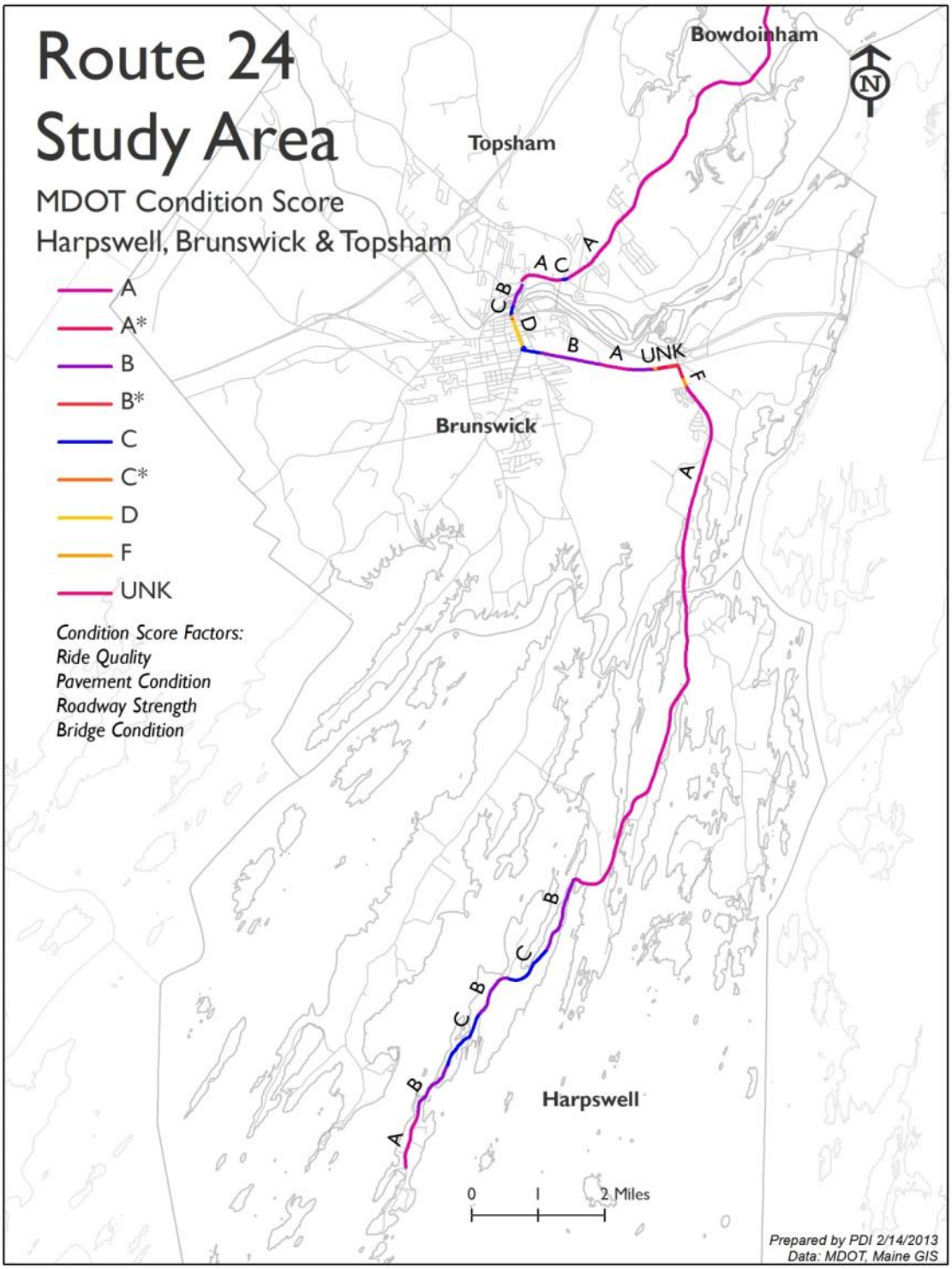

Route 24
Study Area
MDOT Condition Score
Harpswell, Brunswick & Topsham
A
A*
B
B*
C
C*
D
F
UNK
Condition Score Factors:
Ride Quality
Pavement Condition
Roadway Strength
Bridge Condition
Bowdoinham
Topsham
Brunswick
Harpswell
N
0
1
2 Miles
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Figure 9

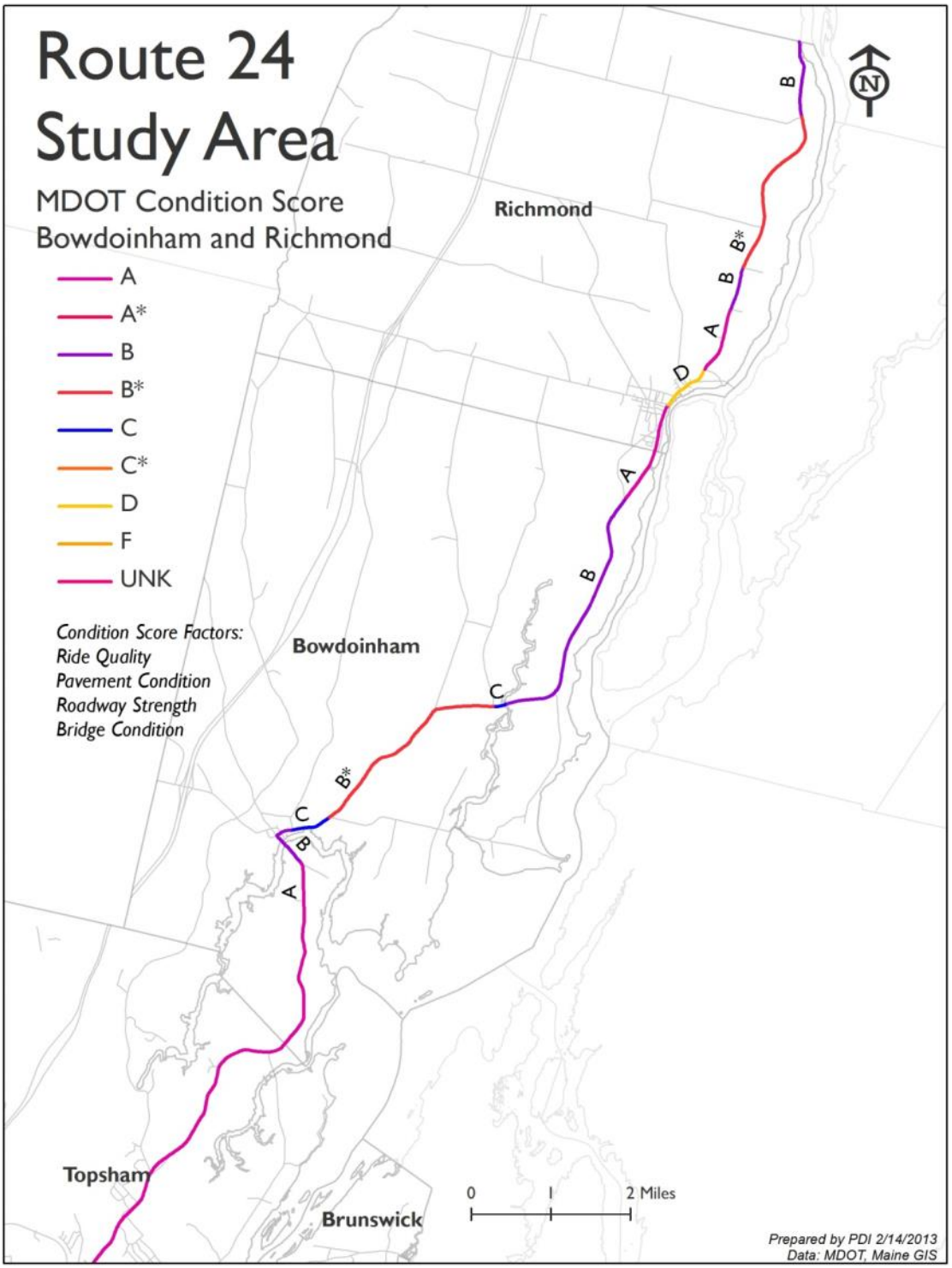

Route 24
Study Area
MDOT Condition Score
Bowdoinham and Richmond
A
A*
B
B*
C
C*
D
F
UNK
Condition Score Factors:
Ride Quality
Pavement Condition
Roadway Strength
Bridge Condition
Richmond
Bowdoinham
Topsham
Brunswick
0
1
2 Miles
N
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Figure 10

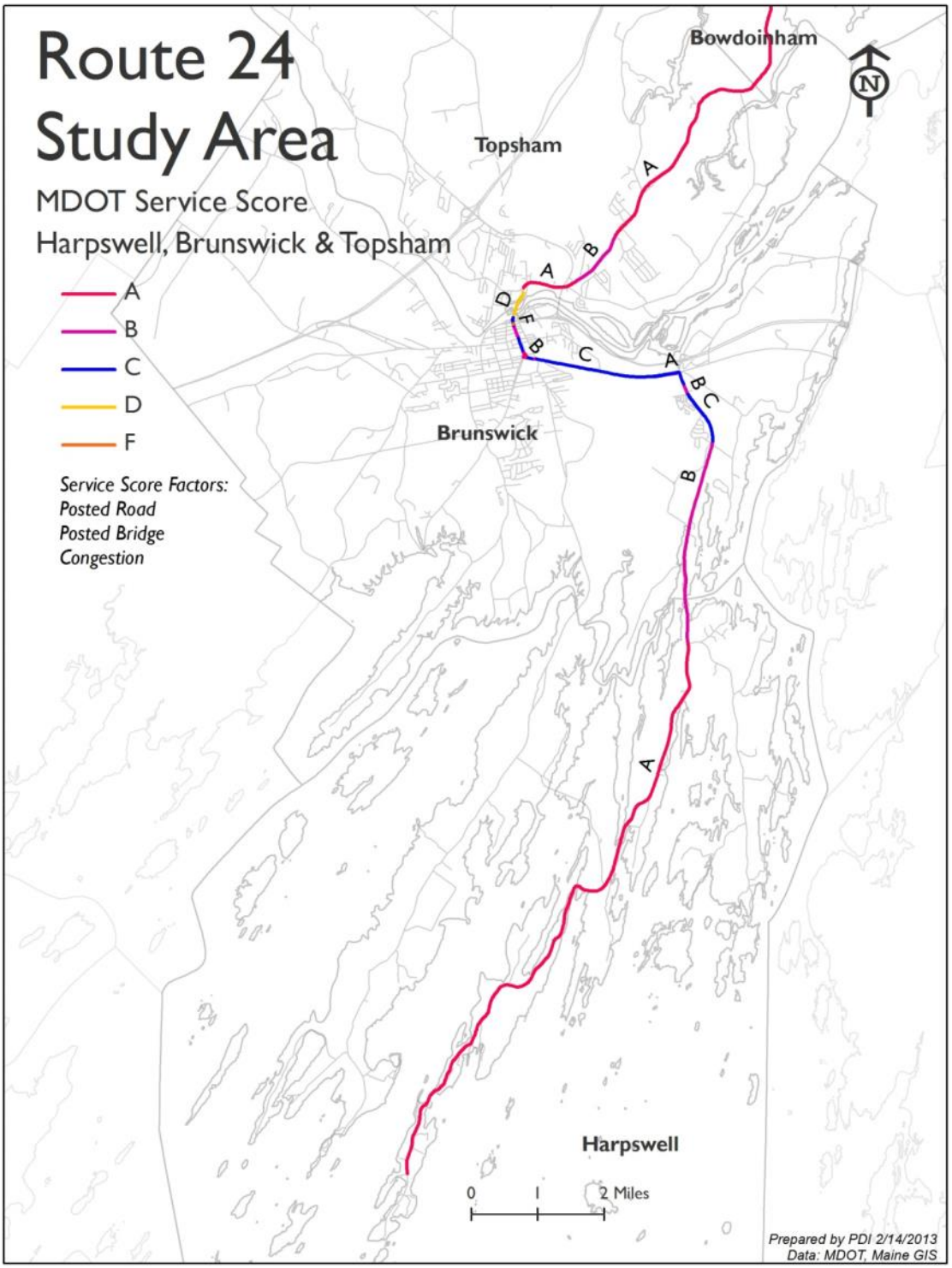

Route 24
Study Area
MDOT Service Score
Harpswell, Brunswick & Topsham
A
B
C
D
F
Service Score Factors:
Posted Road
Posted Bridge
Congestion
Bowdoinham
Topsham
Brunswick
Harpswell
N
0
1
2 Miles
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Figure 11

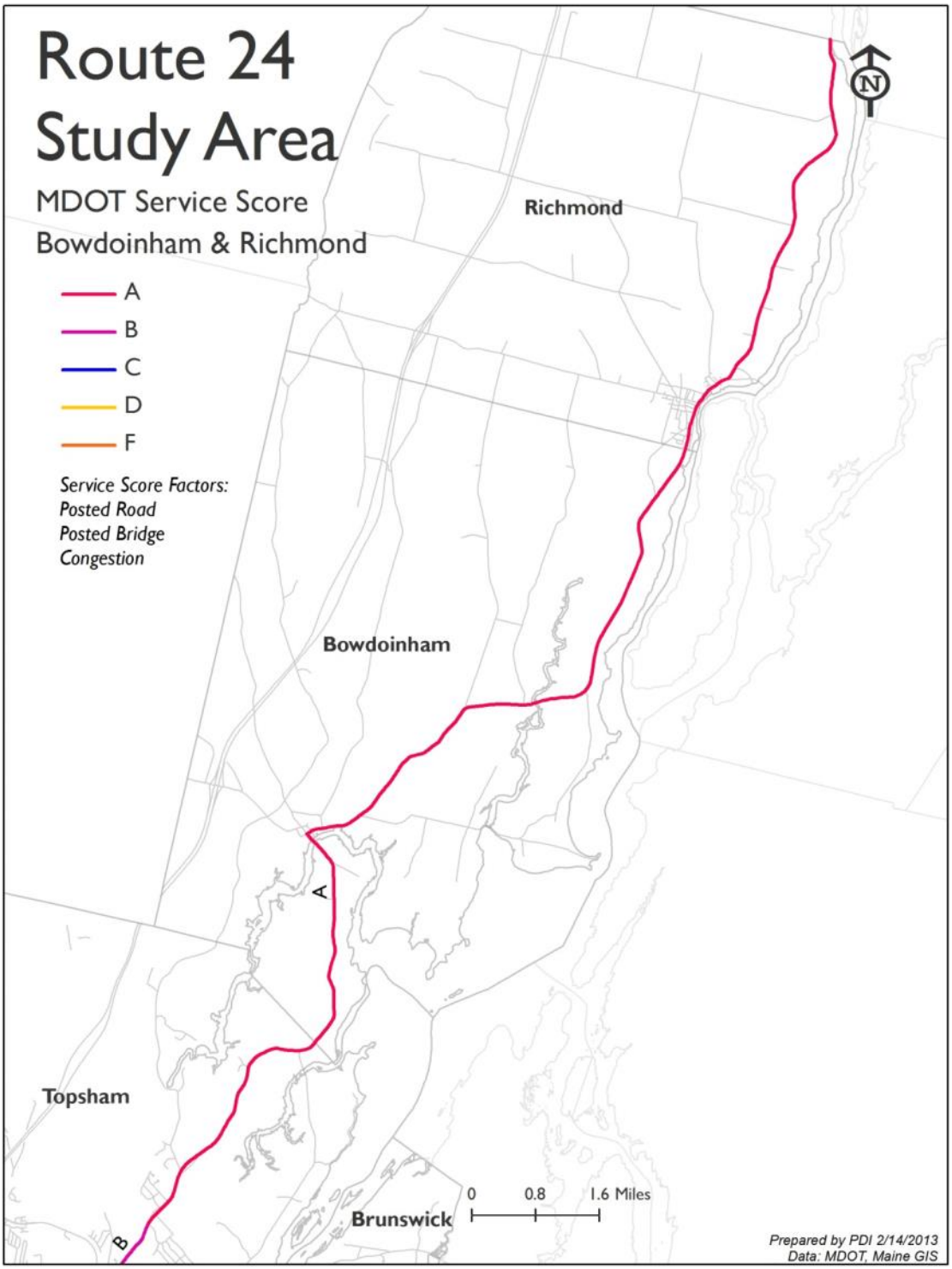
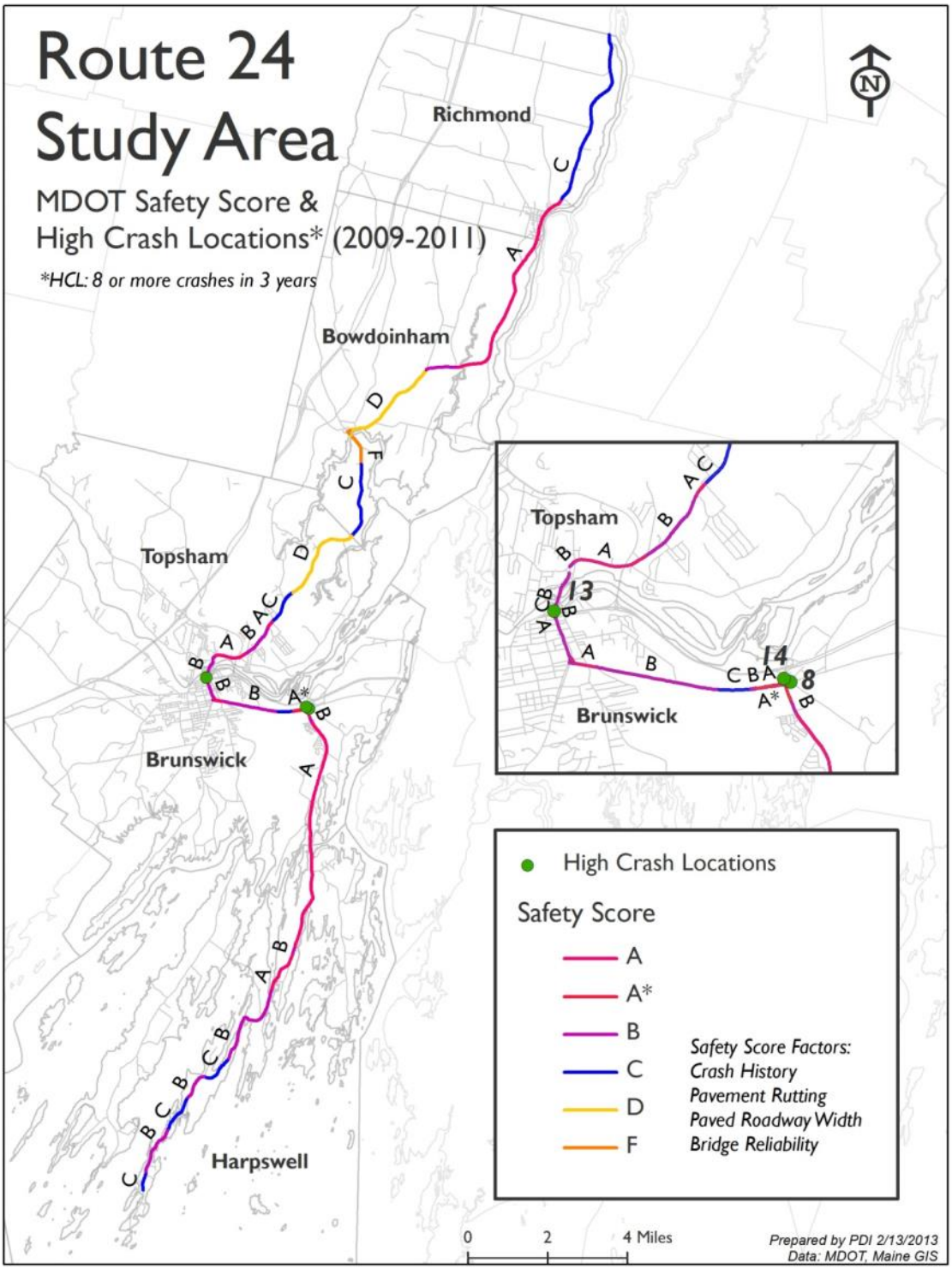

Route 24
Study Area
MDOT Service Score
Bowdoinham & Richmond
A
B
C
D
F
Service Score Factors:
Posted Road
Posted Bridge
Congestion
Richmond
Bowdoinham
Topsham
Brunswick
A
B
N
0
0.8
1.6 Miles
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Figure 12


Route 24
Study Area
MDOT Safety Score &
High Crash Locations* (2009-2011)
*HCL: 8 or more crashes in 3 years
Richmond
Bowdoinham
Topsham
Brunswick
Harpswell
13
14
8
High Crash Locations
Safety Score
A
A*
B
C
D
F
Safety Score Factors:
Crash History
Pavement Rutting
Paved Roadway Width
Bridge Reliability
0
2
4 Miles
Prepared by PDI 2/13/2013
Data: MDOT, Maine GIS

C. Transit, Bicycling and Walking

Public transit in the study area includes bus and rail service as well as two Park and Ride facilities (Figure 13).

Bus

The Brunswick Explorer is a local bus service. The Explorer route includes Route 24 to Cook's Corner, as well as Brunswick Station on Maine Street.

Concord Coach is regional private carrier which stops at Brunswick Station and Bowdoin College.

Greyhound is a private carrier which stops at the 7-Eleven on Maine Street in Brunswick.

Train

Amtrak provides service to Portland and south three times per day from the Brunswick Station.

Maine Eastern provides seasonal passenger excursion rail, departing from Brunswick Station north to Rockland.

The Lower Road Branch north to Augusta is not currently active.

Park and Ride

There are two Park and Ride facilities in the study area: one at Brunswick Station and one at the Home Depot in Topsham (which is not on Route 24).

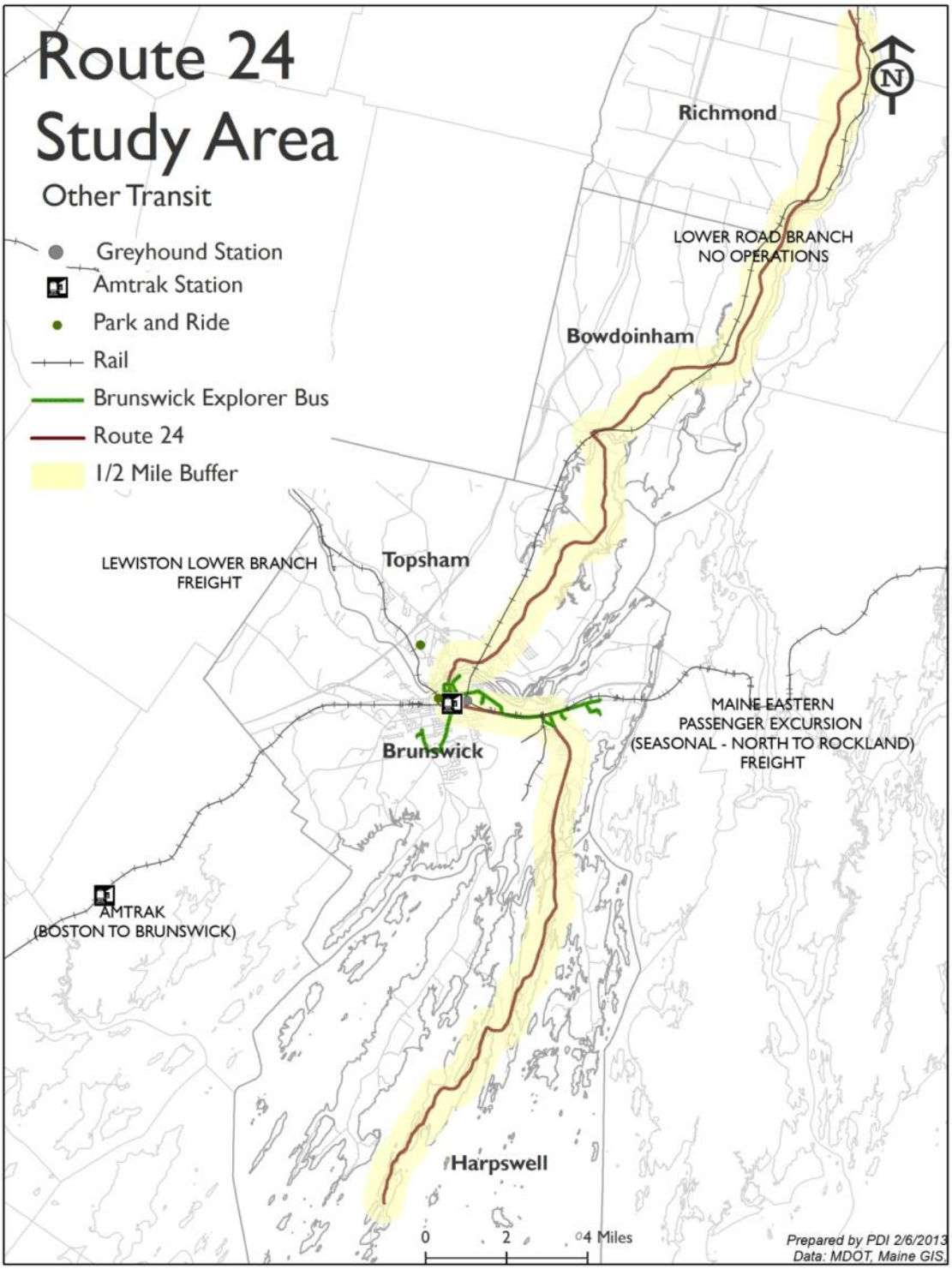
Bicycling and Walking

Many individuals use Route 24 for bicycling and walking transportation trips, especially in village areas. In rural areas, Route 24 is often the only place for people to walk in their neighborhoods.

Route 24 is the interim route for the Merrymeeting Trail, a planned bike-pedestrian trail that would extend from Topsham to Gardiner along the Merrymeeting Bay and Kennebec River.[2] Local and regional bicycle groups, including the Merrymeeting Wheelers, often use Route 24 for group rides.

[2] http://merrymeetingtrail.org/planning.html

Figure 13


Route 24
Study Area
Other Transit
Greyhound Station
Amtrak Station
Park and Ride
Rail
Brunswick Explorer Bus
Route 24
1/2 Mile Buffer
Richmond
LOWER ROAD BRANCH
NO OPERATIONS
Bowdoinham
LEWISTON LOWER BRANCH
FREIGHT
Topsham
Brunswick
MAINE EASTERN
PASSENGER EXCURSION
(SEASONAL - NORTH TO ROCKLAND)
FREIGHT
AMTRAK
(BOSTON TO BRUNSWICK)
Harpswell
0
2
4 Miles
Prepared by PDI 2/6/2013
Data: MDOT, Maine GIS

D. Corridor Capacity

Access Management is the planned location and design of driveways and entrances to public roads. According to MaineDOT, the goals of access management are to increase safety, enhance mobility, and avoid future construction costs by preserving the capacity of the existing highway system.

As a major urban collector, Route 24 is subject to MaineDOT Access Management rules. On portions of the highway that are outside of Urban Compact Areas (Figure 14), anyone installing a new driveway or entrance along a state highway, or changing the use of an existing driveway (for example, from residential to business) must get a permit from MaineDOT. On portions of Route 24 that are within Urban Compact Areas, the municipality holds jurisdiction. When local rules differ from state rules, the stricter of the two applies.

Most of the five towns in the study area have either 1) suggested policies, or 2) policies based on motorized vehicle speed limit and sight distance. The policies in Table V-6 below may be summaries of town codes, and not exact language.

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Figure 14

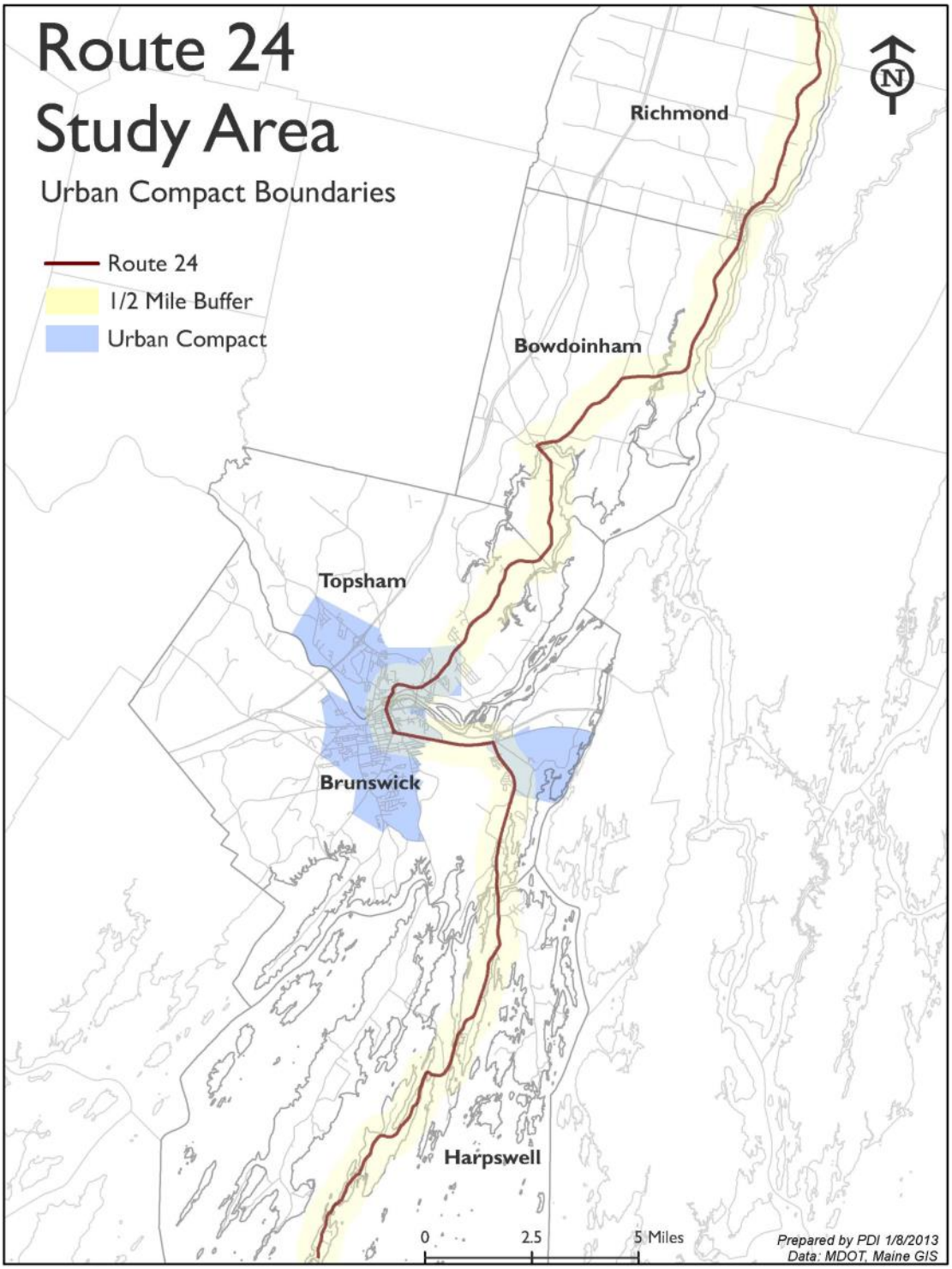
Route 24
Study Area
Urban Compact Boundaries
Route 24
1/2 Mile Buffer
Urban Compact
Richmond
Bowdoinham
Topsham
Brunswick
Harpswell
N
0
2.5
5 Miles
Prepared by PDI 1/8/2013
Data: MDOT, Maine GIS

Table V-6: Local Access Management Policy by Town

Town	Access Management Policy
Harpswell	Subdivisions with roads connecting directly to State arterial roads shall obtain entrance permits from Maine DOT. Any owners of lots fronting on State Route 123, State Route 24, the Cundy's Harbor Road or the Mountain Road are encouraged to share driveways to reduce curb cuts and improve safety. A curb cut must be approved by the Maine DOT and the Town Road Commissioner. (Harpswell Road Ordinance)
Brunswick	Any development review proposal that will generate over 500 vehicle trips per days, as determined by Institute of Traffic Engineers (ITE) standards, shall comply with the standards in the code (based on speed of road and sight distance). (Town of Brunswick Zoning Ordinance)
Topsham	Safe access shall be assured by providing an adequate number and location of access/egress points with respect to sight distances, intersections and other traffic generators. The proposed development shall not have an unreasonable impact on local roads by degrading the levels of service and shall assure safe interior circulation patterns by separating vehicular and pedestrian traffic within the site. Access/egress points shall be designed in accordance with sight distance: (specific site distances in code) (Topsham Municipal Code)
Bowdoinham	MaineDOT has jurisdiction over access management in Bowdoinham. Driveway placement based on unobstructed sight distance (based on speed of road and sight distance). (Town of Bowdoinham Land Use Ordinance)
Richmond	Private access ways must be at least 50 feet from nearest intersection; Public streets must be at least 150 feet from the closes intersection; Private accessways into a development shall be separated by at least 75 feet. (Town of Richmond Land Use Ordinance)

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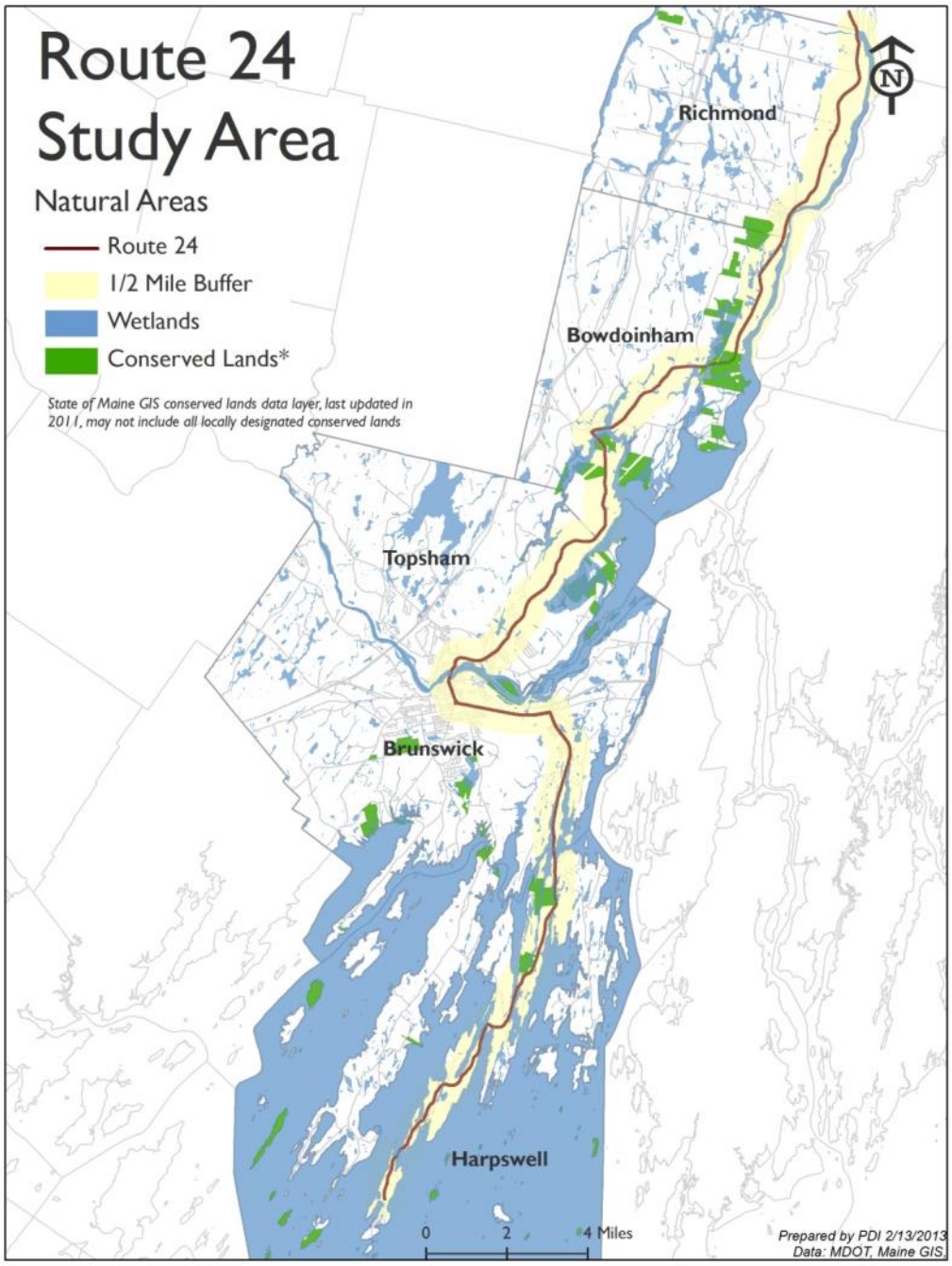
Figure 15 presents Route 24 natural areas and possible development constraints.

Figure 15



VII. Existing Plans & Land Use Regulations

A. Harpswell

Harpswell's 2005 Comprehensive Plan describes Route 24 as one of the four principal roads in town, passing by "the open spaces, forests, bays, coves, villages, and harbors that define, in part, Harpswell's unique rural character."

The plan states that Route 24, "should be preserved as an open, winding, beautiful entrance to Town – curb cuts for new developments restricted, street lights discouraged, and bike trails set alongside. This is an area where marine-related and home-based businesses can develop – but not strip malls."

There are three zoning districts in Harpwell: Shoreland, Interior, and Tower. Shoreland Zoning applies to all land within 250 feet of the water in Harpswell. It includes Business, Residential, Resource Protection, Eagle Island Historic, and Commercial Fishing (Figure 16).

Devil's Back is a town-owned property on both sides of Route 24, just past the Orr's Island bridge from Great Island, which includes a hiking trail and parking improvements.

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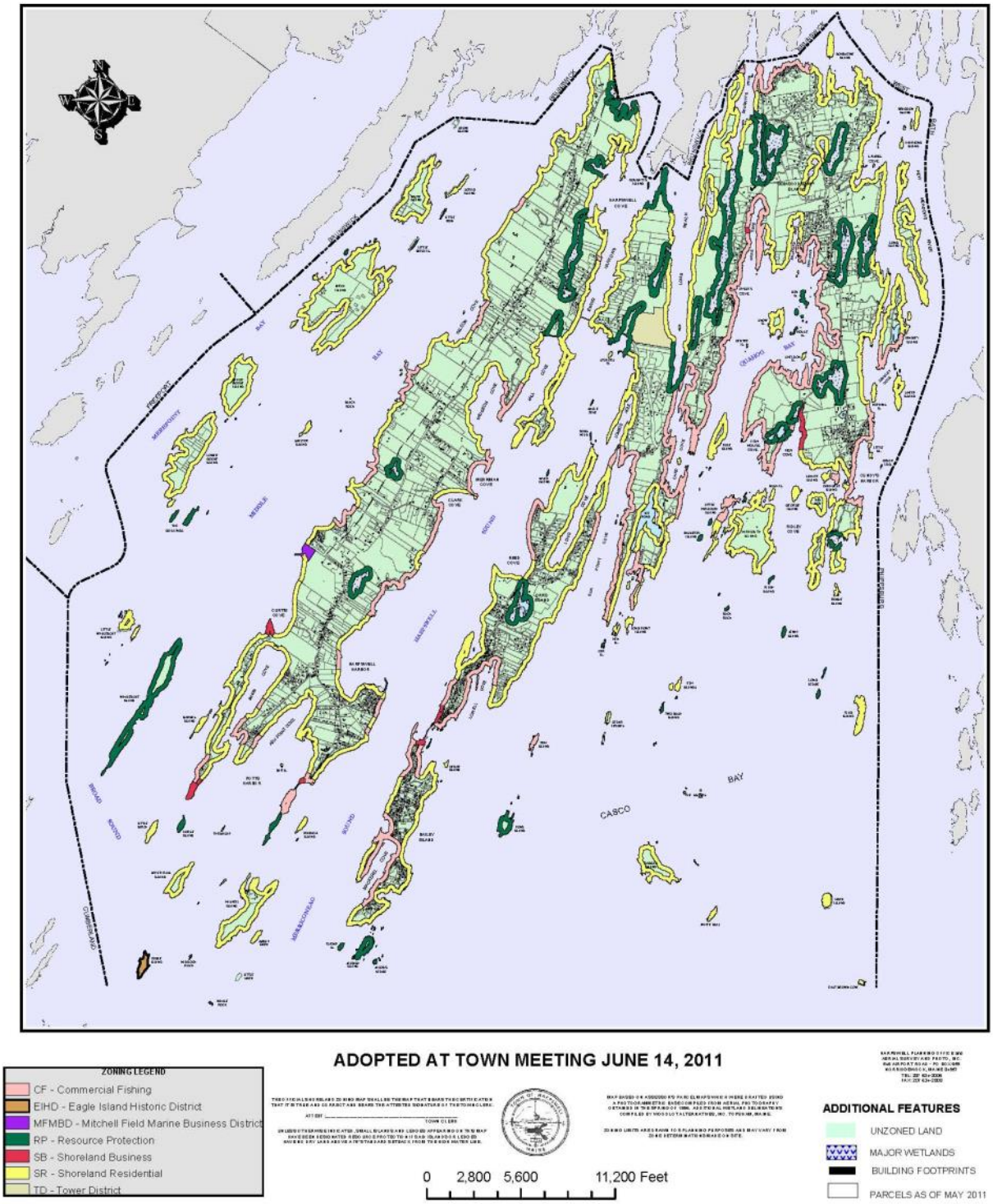
Figure 16

TOWN OF HARPSWELL
SHORELAND ZONING MAP



B. Brunswick

Route 24 in Brunswick includes Maine Street downtown and along the Old Bath Road to Cook's Corner.

Brunswick's 2011 Downtown Master Plan vision statement describes how sidewalks and landscaping will create a unified, pedestrian friendly whole, and the sides of Maine Street will be connected with well-landscaped islands or pedestrian refuges. "Downtown is a pedestrian- and bike-friendly area with ample, easy-to-find parking, improved pedestrian crossings, and traffic-calming mechanisms. Together these create a roadway with fewer driver distractions. Through-traffic is minimized by directing it to appropriate alternative streets and highways."

The 2011-2012 Brunswick Downtown Walkability plan states that "In order to increase comfort for all modes, enhance the commercial environment, foster placemaking while still accommodating automobile travel, emergency service and snow storage, Brunswick should rebalance the level of service on Maine Street to better accommodate all road users, including shop owners." It recommends the Town:

1) Make changes to the travel-way of Maine Street (curb to curb) to increase space for pedestrians and streetscape amenities and encourage slower vehicular travel speeds.
2) Establish designated space in the travel-way for cyclists, encouraging cycling but discouraging cycling on the sidewalk.
3) Improve intersections to enhance pedestrian comfort, safety and efficiency as well as improving vehicular traffic flow.
4) Encourage sidewalk, building and amenity design and layout that support a continuous and vibrant sidewalk space that is welcoming, comfortable, and usable for pedestrians.
5) Ensure that changes enhance the street's function and experience in all seasons.
6) Create several gathering places along Maine Street; capitalizing on opportunities to build off of existing destinations and create new destinations of a variety of types along Maine Street.

The 1998 Cook's Corner Master Plan envisions a diversification of uses at Cook's Corner, including the introduction of housing, light industrial, and office development, at a scale that accommodates pedestrian and bicyclists. The plans recommendations include creating additional travels routes to alleviate congestion and provide increased frontage for new development; making improvements along existing roads to ease

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travel for automobiles as well as bicyclists and pedestrians; implementing design guidelines to make a people oriented place; and enlarging the area zoned for big box development and distinguishing between areas suitable for big box development and those more suitable for small-scale, mixed use development.

The Midcoast Regional Redevelopment Authority's (MRRA) Brunswick Naval Air Station Reuse Master Plan describes the nature and magnitude of transportation demands associated with redevelopment of the facility, as well as the ability of the existing transportation systems to accommodate these demands, as paramount considerations. "A recurring theme from the public was the desire to provide viable alternatives to single passenger automobile travel, and sensitivity to other uses in the vicinity of the base." The transportation framework plan element of the Reuse Master Plan addresses both off-site and on-site capacity-related improvements, including:

- The creation of a new connector spur and interchange that will connect to US Route 1 west of the present interchange at Cook's Corner
- New secondary points-of-access onto the adjacent street systems at Bath Road / Gurnet Road / Harpswell Road
- New east / west connector linking Gurnet and Harpswell Roads
- The widening of Bath Road
- The creation of a new network of pedestrian / bicycle trails.

The purpose of the 2010 Naval Air Station Traffic Feasibility Study is to recommend improvements to improve mobility and access in support of the redevelopment of NASB (Naval Air Station Brunswick). Strategies evaluated in the plan include providing direct access to US Route 1 from the NASB; improving mobility along the Coastal Connector (Route 196) and Route 201; improving mobility along Pleasant and Mills Streets; and extending the existing rail spur to the NASB.

Route 24 in Brunswick runs through the following types of zones: BNAS Reuse (multi-use, including aviation, office and residential), College Use (Bowdoin), Cook's Corner (Residential and Commercial), Town Residential (with limited other uses), Town Center (mixed use), and Highway Commercial (existing strip development) (Figure 15).

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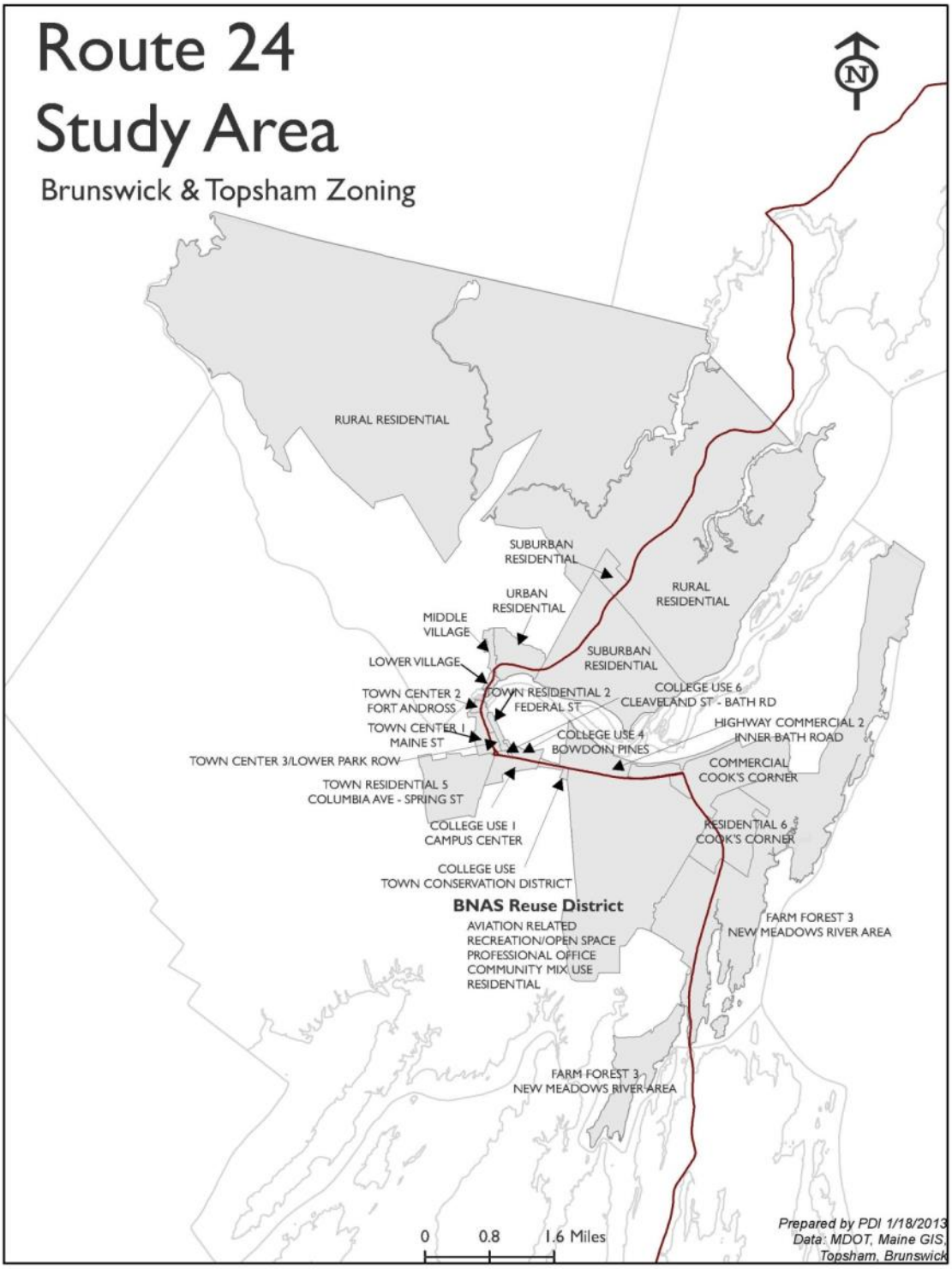
Figure 17


Route 24
Study Area
Brunswick & Topsham Zoning
N
RURAL RESIDENTIAL
SUBURBAN RESIDENTIAL
URBAN RESIDENTIAL
RURAL RESIDENTIAL
MIDDLE VILLAGE
SUBURBAN RESIDENTIAL
LOWER VILLAGE
TOWN CENTER 2 FORT ANDROSS
TOWN RESIDENTIAL 2 FEDERAL ST
COLLEGE USE 6 CLEAVELAND ST - BATH RD
TOWN CENTER 1 MAINE ST
COLLEGE USE 4 BOWDOIN PINES
HIGHWAY COMMERCIAL 2 INNER BATH ROAD
TOWN CENTER 3/LOWER PARK ROW
COMMERCIAL COOK'S CORNER
TOWN RESIDENTIAL 5 COLUMBIA AVE - SPRING ST
COLLEGE USE 1 CAMPUS CENTER
RESIDENTIAL 6 COOK'S CORNER
COLLEGE USE TOWN CONSERVATION DISTRICT
BNAS Reuse District
AVIATION RELATED
RECREATION/OPEN SPACE
PROFESSIONAL OFFICE
COMMUNITY MIX USE
RESIDENTIAL
FARM FOREST 3 NEW MEADOWS RIVER AREA
FARM FOREST 3 NEW MEADOWS RIVER AREA
0 0.8 1.6 Miles
Prepared by PDI 1/18/2013
Data: MDOT, Maine GIS, Topsham, Brunswick

C. Topsham

Route 24 in Topsham includes the lower portion of Main Street, historic Elm Street, and Middlesex Road.

Topsham's 2005 Comprehensive Plan envisions the village area (which includes Main Street) as the core of the community, with small-scale businesses, historic homes, public services such as police, schools and post office, and a waterfront park. "Pedestrians will be able to move about in safety and with ease, thanks to more sidewalks, better traffic flow, more parking, more bike trails, and safe crosswalks. More of the Village's historic buildings will be renovated and improved." High design standards, landscaping, and infill development that complements the existing character of the area will help the village retain its historic New England character.

The plan envisions that the Foreside Road/Middlesex Road area will not change significantly in the next two decades, except that recreational opportunities will expand. "Scenic views of the rivers, farms, and Merrymeeting Bay will be protected, and a limited amount of residential development will occur to the north (in clustered developments). In towards the Downtown there will be more infill development on expanded public utilities. More bicycle and pedestrian paths (including a connection across the Androscoggin to the bike path), hiking trails, water access points, sidewalks, and recreation opportunities at the recreation complex will make this a regional recreation center."

The comprehensive plan proposes that redevelopment in the lower and middle village areas complement the existing dense, mixed-use pedestrian scaled village, and that the Town ensure traffic along Main Street is not harmful to the pedestrian-oriented businesses in the Lower, Middle, and Upper Villages.

Route 24 in Topsham goes through residential zones (Urban, Suburban and Residential), as well as mixed use, pedestrian scale areas (Lower Village and Middle Village (Figure 12).

The proposed Merrymeeting Trail is a multi-use trail planned as a "rail with trail" that would link the communities of Topsham, Bowdoinham, Richmond, and Gardiner (Figure 16). The 25 miles trail would connect to the 6.5 mile long Kennebec River Rail Trail from Augusta to Gardiner in the north, and the 2.6 mile long Androscoggin River Bicycle and Pedestrian Path in Brunswick and Topsham to the south. It would parallel portions of the Kennebec River, cross the Cathance and Adagadassett Rivers and their

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network of trails connecting publicly owned land, and parallel the western side of the Merrymeeting Bay.

According to the 2012 Merrymeeting Trail Feasibility Study, Route 24 will serve as the interim route connecting Topsham Village and Bowdoinham Village, until such time as sections A1 and A2 are constructed.

Figure 18

There is a plan to extend the Androscoggin River Bike Path that currently terminates at Elm Street (Route 24) over Elm Street and on to Main Street. This will also serve as the last leg of the Merrymeeting Trail as it approaches Topsham at Tedford Road.

D. Bowdoinham

The Bowdoinham Walkable Village Plan states that "crossing Route 24 either at the intersection of Main Street or at the intersection of Ridge Road is currently dangerous.

Sidewalks, crosswalks and added signage would help reduce speed and allow pedestrians to safely cross."

The plan also describes Route 24 as an important highway corridor linking Bowdoinham to Topsham (south) and Richmond (north). "This road is used by many bicyclists, but is somewhat dangerous due to limited shoulders. There are numerous scenic views along the road that could be more accessible to pedestrians and bicyclists if there were sidewalks in the village as well as shoulders, where appropriate."

The plan calls for a number of Route 24 pedestrian improvements. Priority 1 investments have been completed.

Road	ID #	Location	Description	Feet
Priority 1 Investments				
River Road (Route 24)	5	Main Street to Ridge Rd	Minimum 4-foot wide sidewalk, paved shoulder	760
	6	Main Street to Cathance River bridge	Minimum 4-foot wide sidewalk, paved shoulder	880
Priority 2 Investments				
River Road	15	Ridge Road to Brown's Point Road	Minimum 4-foot wide sidewalk with shoulder or paved shoulder	2,700
Bay Road	8	Wallentine Road to Cathance Bridge	Minimum 4-foot wide sidewalk, 2-foot wide shoulder	1,720
Priority 3 Investments				
River Road	21	Browns Point Road to Elloit Lane	Minimum 4-foot wide sidewalk with shoulder or paved shoulder	1,400

5. Main Street to Ridge Road: Connects Main Street and the Ridge Road, which serves to connect Bowdoinham Community School, Municipal Recreation Complex the Country Store and Town Landing Restaurant. 6. Cathance River to Main Street: Connects residents to Main Street.8. Connects residents to the Village. 15. Ridge Road to Browns Point Road: Connects residents to the Village. 21. Browns Point Road to Elloit Lane: Connects the River Road, the Town Landing and the Country Store to the Mailly Waterfront Park.

All of Bowdoinham is zoned Residential-Agricultural, with Shoreland Zoning overlays. Route 24 goes through the following Shoreland zones: Resource Protection, Limited Commercial & General Development (Figure 19).

The proposed Merrymeeting Trail uses Route 24 as an interim route in Bowdoinham (Figure 18, above).

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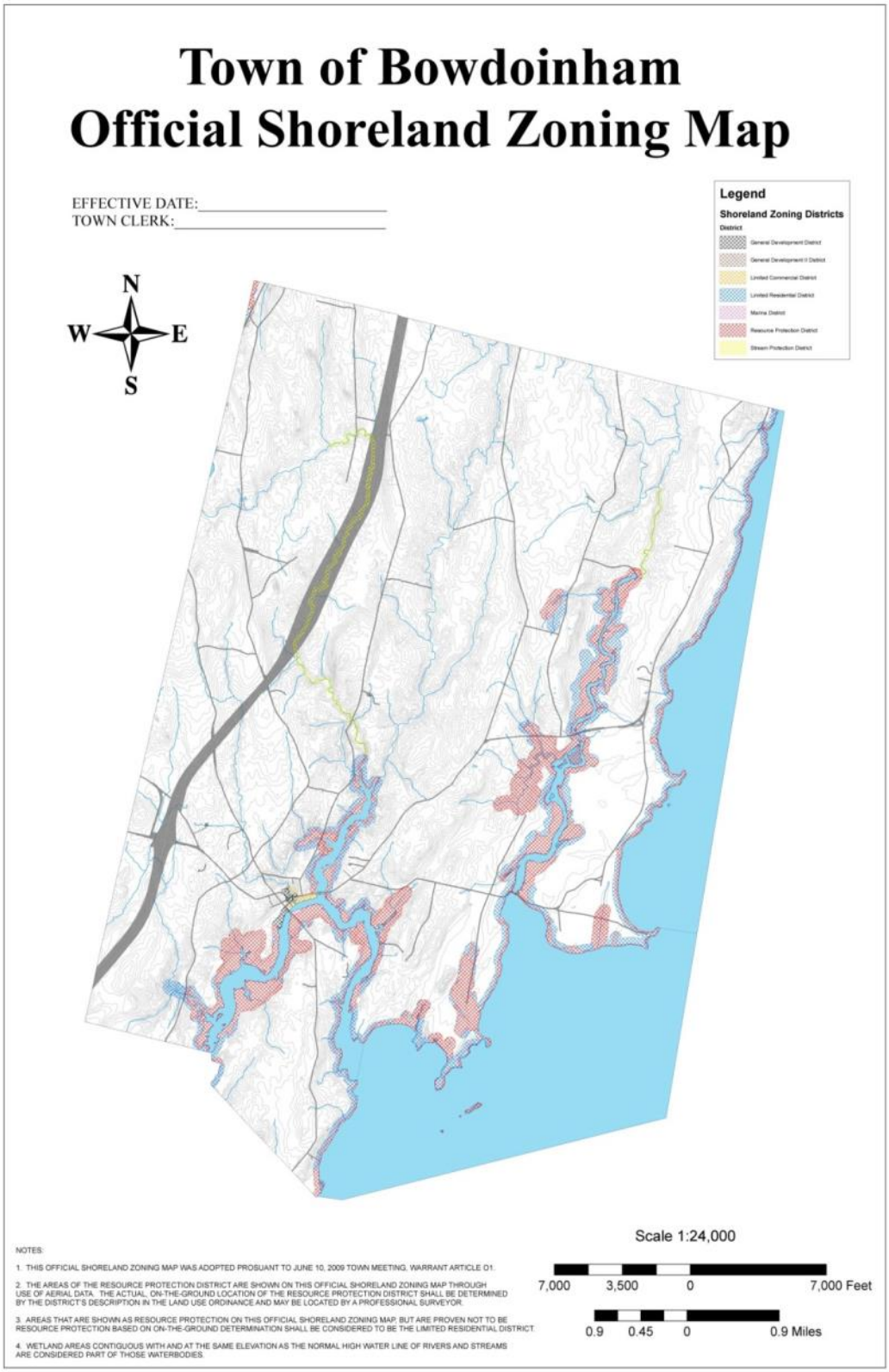
Figure 19


Town of Bowdoinham
Official Shoreland Zoning Map
EFFECTIVE DATE:
TOWN CLERK:
Legend
Shoreland Zoning Districts
District
General Development District
General Development II District
Limited Commercial District
Limited Residential District
Marina District
Resource Protection District
Stream Protection District
N
W
E
S
Scale 1:24,000
7,000
3,500
0
7,000 Feet
0.9
0.45
0
0.9 Miles
NOTES:
1. THIS OFFICIAL SHORELAND ZONING MAP WAS ADOPTED PROSUANT TO JUNE 10, 2009 TOWN MEETING, WARRANT ARTICLE 01.
2. THE AREAS OF THE RESOURCE PROTECTION DISTRICT ARE SHOWN ON THIS OFFICIAL SHORELAND ZONING MAP THROUGH USE OF AERIAL DATA. THE ACTUAL, ON-THE-GROUND LOCATION OF THE RESOURCE PROTECTION DISTRICT SHALL BE DETERMINED BY THE DISTRICT'S DESCRIPTION IN THE LAND USE ORDINANCE AND MAY BE LOCATED BY A PROFESSIONAL SURVEYOR.
3. AREAS THAT ARE SHOWN AS RESOURCE PROTECTION ON THIS OFFICIAL SHORELAND ZONING MAP, BUT ARE PROVEN NOT TO BE RESOURCE PROTECTION BASED ON ON-THE-GROUND DETERMINATION SHALL BE CONSIDERED TO BE THE LIMITED RESIDENTIAL DISTRICT.
4. WETLAND AREAS CONTIGUOUS WITH AND AT THE SAME ELEVATION AS THE NORMAL HIGH WATER LINE OF RIVERS AND STREAMS ARE CONSIDERED PART OF THOSE WATERBODIES.

E. Richmond

Richmond's Comprehensive Plan recommends improving the village as a pedestrian environment by improving sidewalks.

The Richmond Village Downtown Revitalization recommends encouraging pedestrian activity on Main Street as key to maintaining the historic character and quality of life in the community. It recommends sidewalk improvements as well as crosswalks and pedestrian bump-outs at several locations along Main Street and Front Street (Route 24) in the village.

The Richmond Waterfront Improvement Report makes recommendations regarding improvements to Fort Richmond Park, a town-owned parcel at the intersection of Maine Street and Front Street, including restrooms, identification of erosion issues and solutions, expansion of the existing floating dock system, creation of boat trailer parking spaces, and a mooring field evaluation to address mooring needs.

Route 24 in Richmond goes through Village (mixed use), Residential, Agriculture and Shoreland Zoning. Shoreland zones: Limited Residential, Resource Protection, Stream Protection and Commercial Fisheries/Marine Activities (Figure 20).

As in Topsham and Bowdoinham, the proposed Merrymeeting Trail uses Route 24 (River Road) as an interim route in Richmond.

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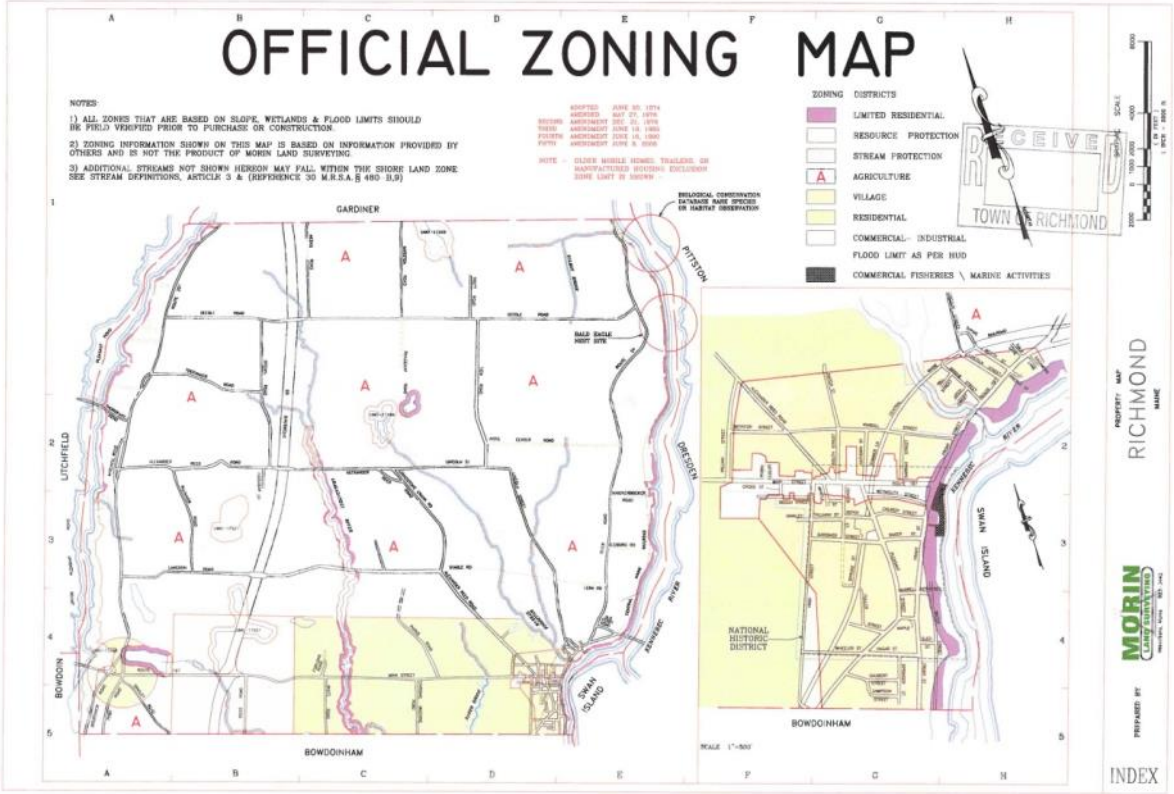
Figure 20



F. *"Connecting Maine" Route 24 Objectives*

As part of the state's long-range (2008-2030) transportation planning effort, the Midcoast Council of Governments (MCOG) identified the following Route 24 regional objectives in 2008. Some of these objectives have already been achieved, some are on-going; others were incorporated into the Route 24 regional objectives identified for this plan. The objectives presented at the beginning of this plan update the 2008 objectives presented below.

2008 Long-Range Plan Route 24 Objectives

<u>Transportation Objectives</u>

• Consider a major rehabilitation or replacement of the Frank Woods Bridge.
• Re-establish left turn onto Maine Street in Brunswick from the Route 1 off-ramp *(complete)*

• Improve the condition and safety of the rail crossing on Maine Street, Brunswick *(complete)*
• Improve the Maine Street/Bath Road intersection.
• Improve traffic flow on the Bath Road portion of Rte. 24.
• Explore ways of improving pedestrian and bicycle facilities along the Bath Road portion of Rte. 24 *(ongoing)*
• Support transit service *(ongoing)*
• Make improvements that will allow the sidewalk under the rail crossing in Topsham to be widened.
• Support safe, inter-connected bike and pedestrian facilities in Brunswick and Topsham *(ongoing)*
• Consider ways of improving access to private land that is cut off by the railroad in Topsham.

Land Use Objectives
• Slow traffic in downtown areas and improve mobility as additional growth takes place.
• Improve pedestrian and bike facilities.
• Develop impact fee systems similar to Brunswick's in other communities to fund road improvements necessitated by new development.

Economic Objectives
• Ensure mobility along Rte. 24 as well as safe access to businesses and residences.
• Ensure that transportation improvements preserve the vitality of downtown areas as important locations for civic, housing, retail and commercial growth.
• Invest in track upgrades and safety improvements to support passenger rail service between Portland and Brunswick as well as Brunswick and Rockland.
• Provide for enhanced utility crossings along selected sections of rail line.

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VIII. Issues & Concerns

Table VIII-1 provides by town the Route 24 issues and concerns identified through a review of existing plans, interviews with town officials, comments made at a public meeting, and plan advisory committee meetings.

Table VIII-1: Issues and Concerns

Harpswell			
Existing Plans	**Town Staff Interviews**	**Public Meeting #1 Comments**	**Committee Meeting #1**
Harpswell Comprehensive Plan (2005) • Preserve Rt 24 scenic resources, open spaces, no strip commercial development	• Need shoulders on Bailey's, Orr's Island • Unsafe for bike/ped south of mountain road – but a lot of bicyclists and pedestrians in the area • Work with property owners on ROW • Signage to public access points • Erosion	**Existing Conditions** • Route 24 uses – mix of tourism, trucking and construction (incl. timber harvests, commercial fishing and boat hauling) • *Route 24 is the only road in and out of Harpswell – critical* for bikes, pedestrians, cars • Route 24 in Harpswell is the (possible) longest segment in the region • Residential complaints about speed limits **Suggested Changes** • Look at doing capital improvements beyond basic maintenance, especially creating paved shoulders south of Mountain Road • Paved shoulders can help extend the life of the road (for cars) – a secondary benefit is a safer location for bicyclists and pedestrians • Scenic/Historic Promotion - including the cribstone bridge • Need permission of property owners to extend the ROW for paved shoulders • Lots of scenic views, but very few places to pull off – people still do, which can be hazardous	• Signage to Harpswell from I-295 not clear • bicyclists – afraid to bike because of speed, broken shoulder • Narrow, limited visibility south of Mountain Road • Emergency evacuation route • People walk along Rt 24, can be dangerous • Town evaluation of street lights resulted in elimination and addition of some lights

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Brunswick			
Existing Plans	**Town Staff Interviews**	**Public Meeting #1 Comments**	**Committee Meeting #1**

Downtown Master Plan
Downtown Walkability (2011-2012)
Naval Air Station Transportation Feasibility Study, *Cook's Corner Master Plan*
 	
• Sidewalks, landscaping, pedestrian and bike friendly
 	
• Minimize through traffic
 	
• Traffic Calming
	• Re-routing Rte 24 away from DT Brunswick – across coastal connector (trying to make downtown more walkable – see DT Master Plan + Walkability)
	• Change Route 24 directional signs within Brunswick to route away from residential streets
		Existing Conditions
		• Cook's Corner Area
		  o Shoulder varies with gaps (south of Ward Rd, marked on map) – makes it harder for less experienced cyclists
		  o Access Management – a lot of parking lots/driveways
		  o Possible redevelopment locations (owned by Schott and several others – marked on map)
		• Bikeability audit – will collect
		• Maine St - Brunswick downtown plan is working on "Right-Sizing" Maine St – adding medians, sidewalks, bike lanes, etc.
		• Check daily traffic counts for Route 24
		• Local residents going from Harpswell to Richmond will skip Brunswick, take Route 1/Route 196 (Route 24 not the most efficient route)
		• Look at MRRA Base Redevelopment study for alternative transportation options and development impact
		• GPS Devices direct people through Rte 24, inefficient routes – how do we influence them? (more traditional GPS, not Google Maps)
		Changes
		• Town of Brunswick would like to redirect Route 24 traffic off Maine St
		  o Should not have a negative financial impact, re: MDOT
		  o Goal: make Brunswick a destination, not a pass through
		  o Send traffic to Route 1 – Coastal Connector
			• Existing Route 24 – not efficient
			• Get rid of signs on Mill St, Cushing, directing people to residential neighborhoods
			• Downeaster impact – likely not much
			• Lights at intersection at Federal St/Rte 24 don't respond to bikes (same situation at Cabot St turning left onto Maine St @ Ft Andross)
			• If Route 24 is re-routed, need to maintain bike routes/access (maybe through signage)

Topsham			
Existing Plans	**Town Staff Interviews**	**Public Meeting #1 Comments**	**Committee Meeting #1**
Comprehensive Plan (2005) *Merrymeeting Trail* • More sidewalks, safe crosswalks	• Rerouting Rte 24 out of historic district (Elm St) • alter RR trestle over Elm St – too narrow	**Existing Conditions** • Paved shoulders are very narrow (see map) • Narrow, poor visibility under railroad tracks • Regional bicyclists ride on Foreside, not Route 24 (local cyclists still use it)	• Get bicycle/ped accident data • Get Road LOS/designations from MDOT • Cleaning of bridge – road is

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• Pedestrian scale • Rt 24 as interim Merrymeeting trail route	for bikes/peds	• New convenience store at Tedford Rd and Route 24 • Look for data on bike-ped accidents – ask local police departments • Green Bridge/Frank Wood Bridge – it's hard to bike on walkway, look at 2012 study for maintenance **Changes** • Town of Topsham wants to re-route out Rte 24 out of Topsham Historic District - Bypass over Merrymeeting to Route 1 • Create signage to direct cyclists to Foreside - also proposed to use Foreside for Merrymeeting Trail • Access control – preplan for future development • Shrubs extending into road – need more maintenance	filled with debris, needs sweeping • Maintenance – who cleans the bridge during the summer? –DPWs or MDOT? • Status of Frank Wood bridge?
Bowdoinham			
Existing Plans	**Town Staff Interviews**	**Public Meeting #1 Comments**	**Committee Meeting #1**
Walkable Village Plan Merrymeeting Trail, Transportation Vision Statement, Route 24 MDOT Scoping Statement • sidewalks in the village • paved shoulders • Rt 24 as interim Merrymeeting trail route	• Dangerous intersections (Ridge Rd, White Rd, Carding Machine Rd) • Scenic Byway? • Rte 24 is interim Merrymeeting Trail – a lot of bike tours • Shoulders end at Topsham town line	**Existing Conditions** • Paved shoulder ends at Bowdoinham line • Speed limit high, narrow road – 50-60 mph • Trees in road – trucks hit them • Route 24 is interim route for Merrymeeting Trail (see map) • Intown road – recently resurfaced • A lot of truck traffic – logging, etc. - not posted-keep heavy weights trucks off the road **Changes** • Need better signage for tourist destinations– will find people in Bowdoinham, looking for Bailey's Island • Maintenance – brush extending into road	• Drivers complain about bikes, low visibility • How to make safe for both cars and bike/ped users? Shoulders can increase car speed • Needs to be rebuilt • Difference between shoulder and designated bike routes • Increased traffic from construction/CNP project

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Richmond			
Existing Plans	**Town Staff Interviews**	**Public Meeting #1 Comments**	**Committee Meeting #1**
Comprehensive Plan Richmond Village Downtown Revitalization, Waterfront Plan • Pedestrian friendly village • Sidewalk improvements and bumpouts • Rt 24 as interim Merrymeeting Trail	• Crumbling sidewalks on Front St • Need shoulder • Dangerous RR trestle – on a curve, hill, too narrow for cars + bikes • Merrymeeting Bay bicyclists	**Existing Conditions** • Town of Richmond is beginning a comp plan update • Speed diminishes as you come into Richmond – not a problem, people are able to slow down • Community of walkers • Interim route for Merrymeeting Trail • Railroad trestle safety – top priority for town (narrow, on hill) • Town will check on sidewalks • Route 24 has better shoulders north of railroad trestle **Changes** • Look at how the Dresden Bridge will interact with Route 24 (DOT study) • Need shoulders going into the village	• RR trestle is too low (shaves off the top of trucks), in addition to being narrow • Look at impact of Dresden Bridge Traffic • Motorcycle traffic

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IX. Objectives & Strategies

The regional objectives identified by this plan for Route 24, from Harpswell to Richmond, are:

1. Ensure safe travel for all corridor users, including vehicle drivers, pedestrians and bicyclists;
2. Maintain the capacity of the corridor;
3. Provide coordinated signage and marketing;
4. Address storm surge and future inundation, particularly with regard to emergency routes; and
5. Re-route Route 24 out of the downtowns of Brunswick and Topsham to remedy high traffic impacts, with consideration for Business 24 designation of the existing route through these towns.

Table IX-1 summarizes the strategies proposed to achieve those objectives, described in detail below.

Table IX-1: Objectives and Strategies

Objective	Strategies
1. Ensure safe travel for all corridor users, including vehicle drivers, pedestrians and bicyclists	• Adopt a Complete Streets-style approach • Make improvements in paved shoulders and bike lanes • Ensure road maintenance to address poor conditions • Widen and lift dangerous railroad trestles in Topsham and Richmond • Review maintenance activities in environmentally sensitive areas
2. Maintain the capacity of the corridor	• Use access management to manage development impacts on the corridor
3. Provide coordinated signage and marketing	• Improve regional and local signage • Capitalize on ocean and water views as assets with value to tourism marketing efforts
4. Address storm surge and future inundation, particularly	• Identify inundation threats to emergency routes, identify alternative routes,

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with regard to emergency routes	adaptation strategies
5. Re-route Route 24 out of the downtowns of Brunswick and Topsham to remedy high traffic impacts, with consideration for Business 24 designation of the existing route in those towns	• Re-route the corridor out of downtown and historic Brunswick and Topsham • Designate existing Route 24 as "Business 24" in Brunswick and Topsham.

Objective 1: Ensure safe travel for all corridor users, including vehicle drivers, pedestrians and bicyclists.

Strategy 1: Adopt a Complete Streets-style approach

The "Complete Streets" method of planning designs streets so that they work for all users – pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.[3] Communities that adopt complete streets policies often ask planners or engineers to design or change the right-of-way with all users in mind.[4] While complete streets policies are often adopted by a municipality or a state, the Route 24 plan recommends that MaineDOT adopt a Complete Streets-style approach for the corridor, including providing sidewalks and paved shoulders for pedestrians and bicyclists as appropriate (see Strategy 2, below).

Strategy 2: Make improvements in paved shoulders and bike lanes

Paved road shoulders can provide a number of important functions, including:

- space for emergency storage of disabled vehicles
- space for law enforcement activities
- space for maintenance activities

[3] Complete Streets Resources:
Implementing Complete Streets: Rural Communities and Small Towns
http://www.smartgrowthamerica.org/documents/cs/factsheets/cs-rural-2.pdf

Sample Complete Streets Resolution (Pipestone, MN)
http://www.mncompletestreets.org/gfx/Pipestone%20Policy.pdf

Federal Highway Administration: Street Design Part 1 – Complete Streets
http://www.fhwa.dot.gov/publications/publicroads/10julaug/03.cfm

[4] http://www.smartgrowthamerica.org/documents/cs/factsheets/cs-rural-2.pdf

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- an area for drivers to maneuver to avoid crashes
- an alternative for cyclists to ride with some separation from vehicular traffic
- structural support for the road and moving water away from the road, increasing the life expectancy of the road.

AASHTO (the American Association of State Highway and Transportation Officials) recommends 4 feet of paved shoulder for bicyclists, 5 feet with a curb (in village areas). According to MaineDOT, the department tries to achieve an 11 foot travel lane and 3 foot paved shoulder on Route 24. MaineDOT policy is to repair crumbling shoulders where they already exist as part of any repair work, and to add paved shoulders whenever the road base is strengthened or reconstructed. MaineDOT should be encouraged to improve shoulders to provide space outside the travel way for pedestrians and bicyclists—this could be wider sidewalks, bike lanes, or sidewalks.

Members of the Merrymeeting Wheelers Bicycle Club have conducted a Bikeability Audit of Route 24 in Harpswell and Brunswick (Figure 19). A similar effort undertaken for all of Route 24 in the study area by local organizations would help identify key locations in need of safety improvement for bicyclist.

Table IX-2 presents the specific locations of Route 24 that need bicycle and pedestrian improvements, as identified by each of the towns.

Table IX-2: Route 24 Bicycle and Pedestrian Issues, Identified by Towns

	Location	Issue	Location	Issue
Harpswell	South of Mountain Road	No shoulders to ride/walk on	Cook's Corner (as service center for Harpswell)	Dangerous for bicyclists and pedestrians
Brunswick	Cook's Corner	Dangerous for bicyclists and pedestrians		
Topsham	Railroad trestle			
Bowdoinham	To Eliot Lane and Wallentine Road	Extend existing sidewalks, per Walkable Village Plan	All of Route 24 in Bowdoinham	Add a 3-foot shoulder

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Richmond	Railroad trestle			

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Figure 21

BIKEABILITY AUDIT INFO

October 2012

Mountain Road to Gurnet Bridge

Discussion:
Medium lane width with fog lines and 1' to 3' shoulder.
Narrow shoulder ¼ mile north of Mountain Road.
Recommended Action: Minor improvements on shoulder needed.

Gurnet Road to Cook's Corner

Discussion:
- heading south from Rt. 1 to Mariner's Landing a wider shoulder and additional striping required;
- paved shoulder gap. At Coombs Rd. Southbound, paved shoulder disappears forcing vehicles passing to the right of left-turning vehicles onto gravel shoulder which is often rutted;
- Southbound from Coombs Road only a 12" paved shoulder, which then expands to 3';
- Paved shoulder gap. Northbound south of Board Road the paved shoulder abruptly ends at DOT Compact Line and then resumes ½-mile further north;

Recommended Action: Minor improvements to shoulder as needed.

Cook's Corner to Federal Street via State Road

Discussion:
- No dedicated bike or pedestrian accommodations at Cook's Corner – an abomination/dangerous
- Federal Street lights are non-responsive to bicycles. An issue that has been addressed with MDOT to no avail.

Recommended Action:
- Major changes to Cook's Corner interchange needed.
- MDOT changes to lights at Federal Street needed.

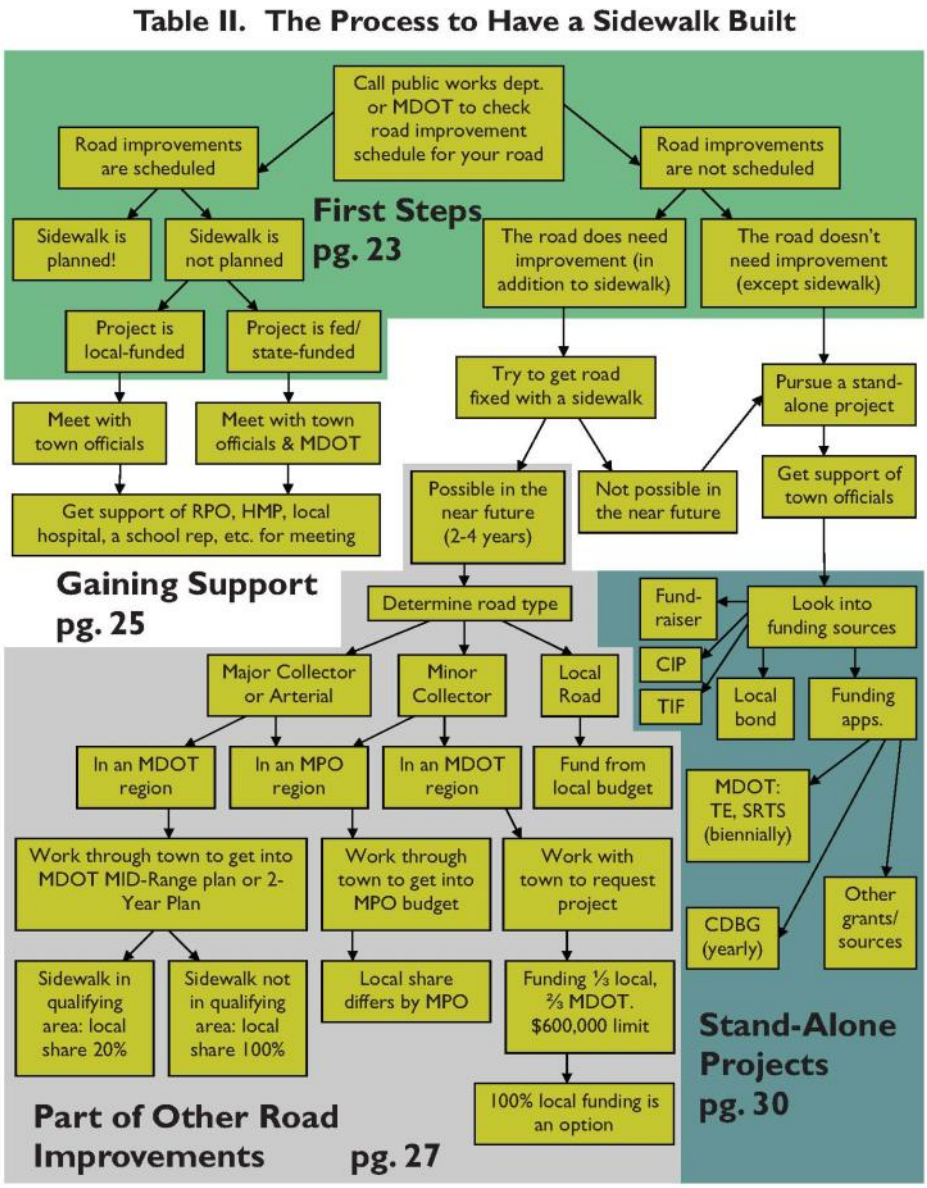
Federal Street to Androscoggin River

Discussion:
Route 24 at newly engineered intersection (Maine Street/US1) does not accommodate bicycles. We must 'take the lane' to be safe and that creates animosity with motorists who do not understand the laws as they apply to cyclists.

Recommended Action:
MDOT changes to lights at Maine Street/US1 interchange needed, in particular Cabot Street.

Figure 22 presents a diagram from MaineDOT about the process to have a sidewalk built, including funding opportunities. In general, pedestrian and bicycle improvements could be funded as part of MaineDOT's Biennial Capital Work Plan (formerly the Biennial Transportation Improvement Program, or BTIP). There are also grant opportunities specifically for pedestrian and bicycle facilities, particularly near schools. A new program at MaineDOT, the Municipal Partnership Initiative, provides a 50% state/50% local cost share. The MPI program is competitive.

Figure 22



Strategy 3: Ensure road maintenance to address poor conditions

The MaineDOT Biennial Capital Work Plan for Fiscal Years 2012-2013 included 18 projects in the study area. None were located on Route 24.

Harpswell: 0
Brunswick: 8
Topsham: 4
Bowdoinham: 1
Richmond: 5

According to MaineDOT, funding for road maintenance is diminishing. Road maintenance is funded by a tax on gasoline, which has been flat at the federal level since 1993. More fuel efficient vehicles also reduce gas tax revenues. At the same time, the cost of road maintenance and improvements is rising, due to increases in the prices of materials (asphalt, etc.) and diesel for equipment and trucks.

Route 24 is a priority 4 road, which means that projects on priority 1, 2, and 3 roads are funded first. The regional engineer estimates that work on Route 24 in the study area will be limited to light paving on a few stretches in the next few years.

Strategy 4: Maine DOT should widen and lift dangerous railroad trestles in Topsham and Richmond.

The Route 24 railroad trestles in Topsham and Richmond are unsafe. In Topsham, the trestle is so narrow that it forces a 5 foot wide sidewalk down to a 2 foot wide sidewalk, and frequently causes people to step into the travel way if passing another pedestrian or bicycle. In Richmond, it is also so low that trucks routinely crash into it.

Both trestles are owned and controlled by MaineDOT. The rail is not currently in use.

Strategy 5: Maine DOT and Route 24 towns should review road maintenance activities in environmentally sensitive areas.

Route 24 towns and Maine DOT should review road maintenance activities – especially winter activities, like salting and sanding – for effects on environmentally sensitive areas, with a focus on stormwater runoff.

Objective 2: Maintain the capacity of the corridor

Strategy 1: Use access management and other tools to manage development impacts on the corridor.

Portions of Route 24 that are outside of Urban Compact Areas (Figure 14) are subject to MaineDOT Access Management rules. On portions of Route 24 that are within Urban Compact Areas, the municipality holds jurisdiction.

Towns along Route 24 could use other tools, such as site plan review, limiting access points, impact fees, and acceleration/deceleration lanes as appropriate to help maintain the capacity of the road and prevent unnecessary congestion.

Objective 3: Provide coordinated signage and marketing

Strategy 1: Improve regional and local signage

According to MaineDOT, MaineDOT is responsible for traffic signs on state and state aid roads. In urban compact areas, the municipality is responsible for all traffic signs except destination and route markers, and speed limit signs where the limit changes. Outside the urban compact areas on state and state aid roads, MaineDOT is responsible for traffic signs and road markings. Municipalities should apply to a Region Traffic Engineer, outlining the problem that the traffic control device would address. In an urban compact area, the municipality is responsible for providing, installing, and maintaining all traffic signs and road markings. However, a proposed "Stop" or "Yield" sign on a state road in a compact area must be reviewed by MaineDOT Traffic Engineer.

Destination and Route Signs "are the sole responsibility of the MaineDOT. They are installed and maintained by MaineDOT. Requests for additional signs or re-signing should be directed to the Division Traffic Engineer. Requests to replace existing signs that have deteriorated, been damaged, or have fallen should be directed to the local MaineDOT Maintenance Division."

Table IX-3 presents Route 24 signage issues, as identified by each of the towns.

Examples of wayfinding plans:

- Wayfinding plan for Hillsborough, NC: http://www.ci.hillsborough.nc.us/sites/default/files/Final%20Wayfinding%20Signage%20Plan_2011.pdf

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- Wayfinding plan for Southlake, TX (won a planning award in 2010): http://www.cityofsouthlake.com/DocumentCenter/Home/View/711

- Wayfinding plan for Bethel, ME: http://www.bethelmaine.org/Pages/BethelME_News/I039EE10D.0/Bethel%20Wayfinding.pdf

- City of Portland Wayfinding System Study: http://www.portlandmaine.gov/planning/wayfindingreport.pdf

Table IX-3: Route 24 Signage Issues, Identified by Towns

	Location	**Issue**	**Location**	**Issue**
Harpswell	I-295	Not clear how to get to Harpswell. Legislative bill to put signs on I-295 has been submitted.	Route 24, especially Orr's and Bailey Island, including the Cribstone Bridge, Mackeral Cove, and the Lobsterman's Statue/Land's End.	Lack of signs for public access and points of interest. Need to be consistent with Manual on Uniform Traffic Control Devices (MUTCD), for example, white on brown signs
Brunswick	Route 24 directional signs at the corner of Mill and Cushing	Directs people to residential neighborhoods – needs to change		
Topsham	Route 196/ Route 24	Need to better direct regional traffic to use the bypass and local traffic to use Main Street/Route 24		

Bowdoinham		Need better signage for tourism destinations throughout region		
Richmond		Need better signage for tourism destinations throughout Richmond		

Strategy 2: Capitalize on ocean and water views as assets with value to tourism marketing efforts.

Designation of a Scenic Byway has a marketing value and can help a region increase tourism. The application process is rigorous and competitive, requiring a region to identify unique regional attributes and value, whether historic, cultural, scenic, or recreational. There are 14 scenic byways in the state, 4 of which are nationally recognized, including in Schoodic, Rangeley, and Acadia. Designation used to include funding, but according to MaineDOT, there is currently no funding for the program.

This could change in the future. In the meantime, the region could capitalize on the unique scenic and recreational assets of the Route 24 corridor to help market the area to potential visitors. Figure 23 presents a draft corridor asset map, including historic downtowns, numerous scenic water viewsheds and boat access points, and recreation opportunities. Numerous additional assets could be added.

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Figure 23

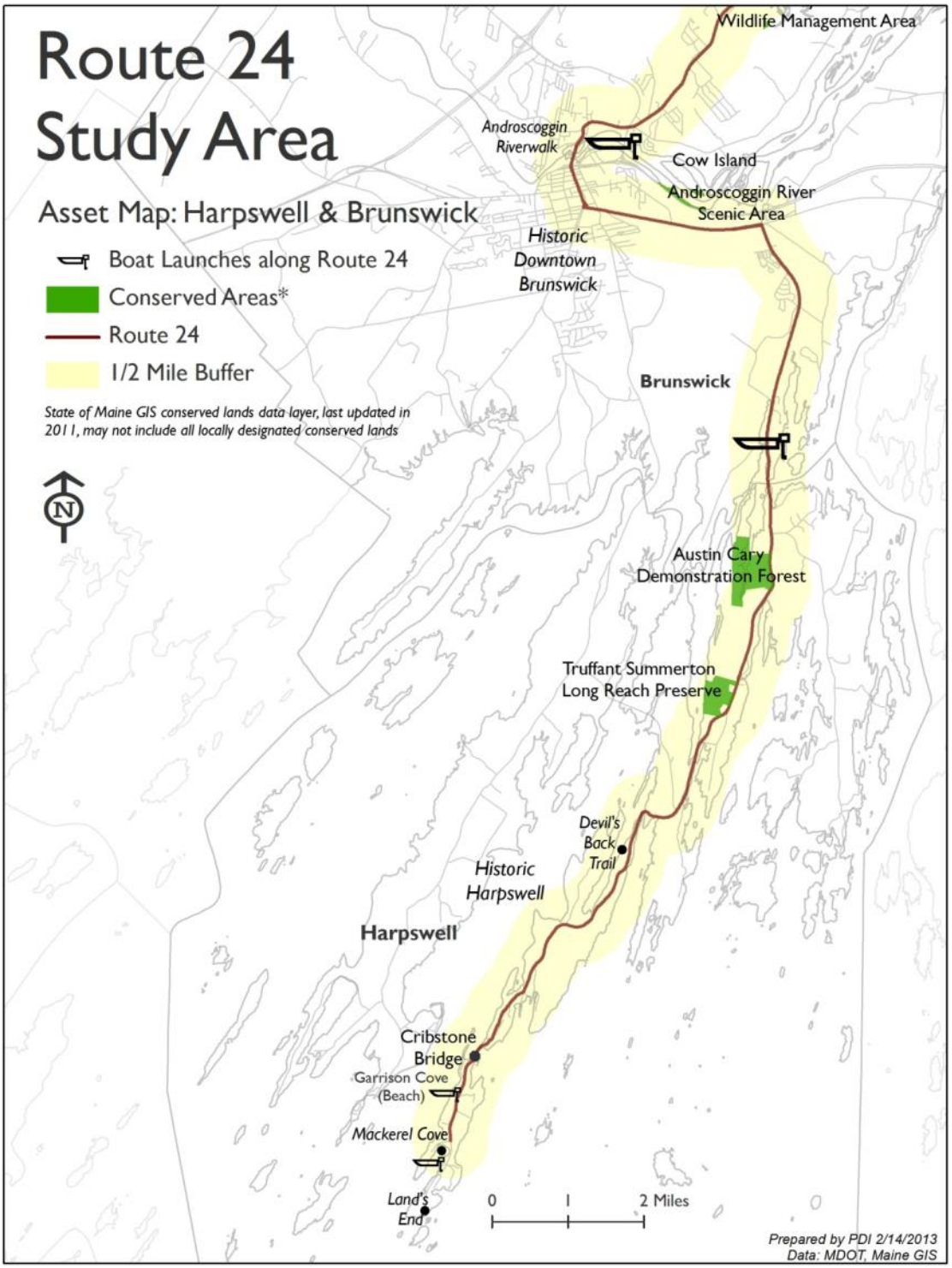
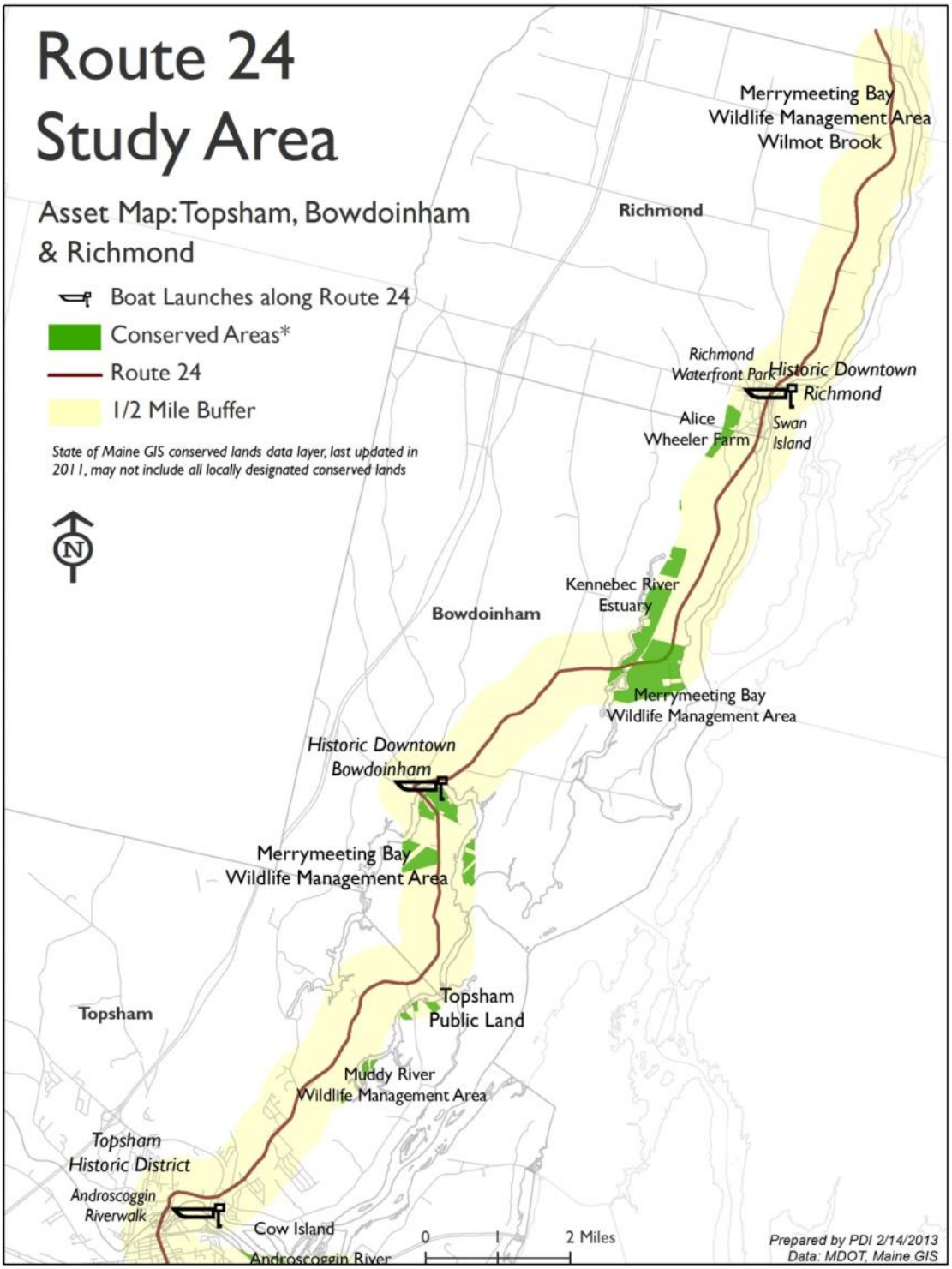

Route 24
Study Area
Asset Map: Harpswell & Brunswick
Boat Launches along Route 24
Conserved Areas*
Route 24
1/2 Mile Buffer
State of Maine GIS conserved lands data layer, last updated in 2011, may not include all locally designated conserved lands
N
Wildlife Management Area
Androscoggin Riverwalk
Cow Island
Androscoggin River Scenic Area
Historic Downtown Brunswick
Brunswick
Austin Cary Demonstration Forest
Truffant Summerton Long Reach Preserve
Devil's Back Trail
Historic Harpswell
Harpswell
Cribstone Bridge
Garrison Cove (Beach)
Mackerel Cove
Land's End
0
1
2 Miles
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Figure 24


Route 24
Study Area
Asset Map: Topsham, Bowdoinham & Richmond
Boat Launches along Route 24
Conserved Areas*
Route 24
1/2 Mile Buffer
State of Maine GIS conserved lands data layer, last updated in 2011, may not include all locally designated conserved lands
N
Merrymeeting Bay Wildlife Management Area Wilmot Brook
Richmond
Richmond Waterfront Park
Historic Downtown Richmond
Alice Wheeler Farm
Swan Island
Kennebec River Estuary
Bowdoinham
Merrymeeting Bay Wildlife Management Area
Historic Downtown Bowdoinham
Merrymeeting Bay Wildlife Management Area
Topsham
Topsham Public Land
Muddy River Wildlife Management Area
Topsham Historic District
Androscoggin Riverwalk
Cow Island
Androscoggin River
0
1
2 Miles
Prepared by PDI 2/14/2013
Data: MDOT, Maine GIS

Objective 4: Address storm surge and future inundation, particularly with regard to emergency routes.

Strategy 1: Identify and respond to inundation threats to emergency routes

Route 24 from Bailey Island (Harpswell) to Route 1 in Brunswick is designated as a "critical evacuation roadway segment" in case of a hurricane or storm event.[5]

Figure 25 compares the Hurricane Surge Evacuation Route (as identified by the Army Corps of Engineers) with a 1 meter sea level rise scenario developed by Professor Eileen Johnson and her students at Bowdoin College. The hurricane surge evacuation route would be inundated at the following Route 24 locations:

- Harpswell: Area around the Cribstone Bridge
- Harpswell: Area around the bridge to Orr's Island
- Brunswick: Gurnet Road, just over the Harpswell line.

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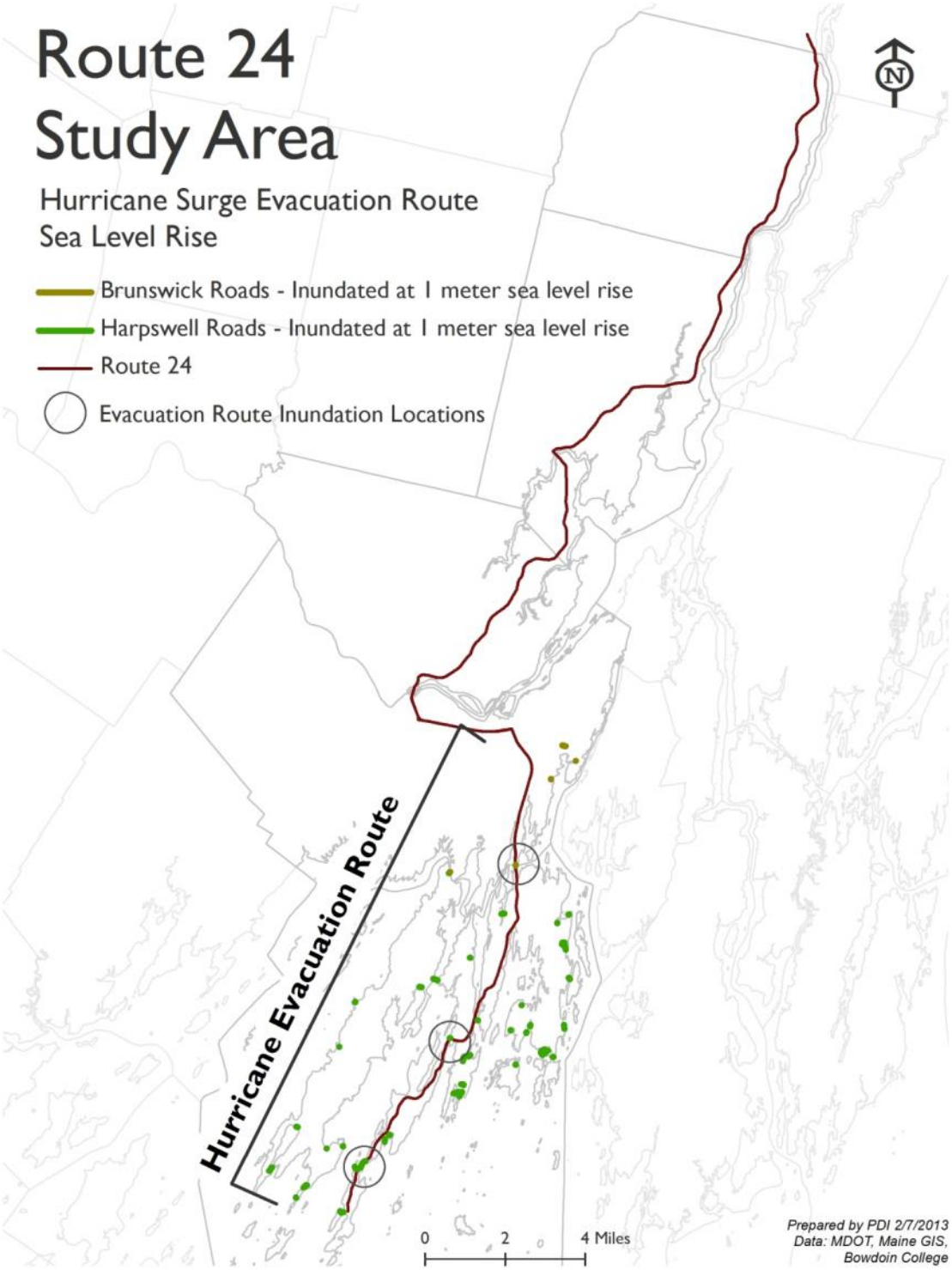
[5] Maine Hurricane Evacuation Study Transportation Analysis – 2007. Prepared for the U.S. Army Corps of Engineers and Battelle Memorial Institute

Figure 25


Route 24
Study Area
Hurricane Surge Evacuation Route
Sea Level Rise
Brunswick Roads - Inundated at 1 meter sea level rise
Harpswell Roads - Inundated at 1 meter sea level rise
Route 24
Evacuation Route Inundation Locations
Hurricane Evacuation Route
0
2
4 Miles
Prepared by PDI 2/7/2013
Data: MDOT, Maine GIS,
Bowdoin College

Objective 5: Re-route Route 24 out of the downtowns of Brunswick and Topsham to remedy high traffic impacts, with consideration for Business 24 designation of the existing route in those towns.

Strategy 1: Re-route the corridor out of downtown and historic Brunswick and Topsham.

The proposed relocated Route 24 would avoid downtown Brunswick and historic Topsham, instead following the Route 196 bypass (Coastal Connector) from Route 1 in Brunswick to Middlesex Road in Topsham (Figure 26). This would reduce through vehicle traffic in areas with lots of pedestrians.

According to MaineDOT, the process involves the towns conducting a public process whereby anyone affected by a route number change has an opportunity for input, and providing information to meet the following state criteria[6]:

"Route number assignments in general are made in a manner to guide the unfamiliar traveler to desired destinations. These assignments have developed into a network of routes that connect major and minor centers of population, industry, recreation, commerce, and government. The basic criteria used to determine the need and location of routes are traffic demand, directness of the highway connections, highway conditions, shortest length, and safety factors.

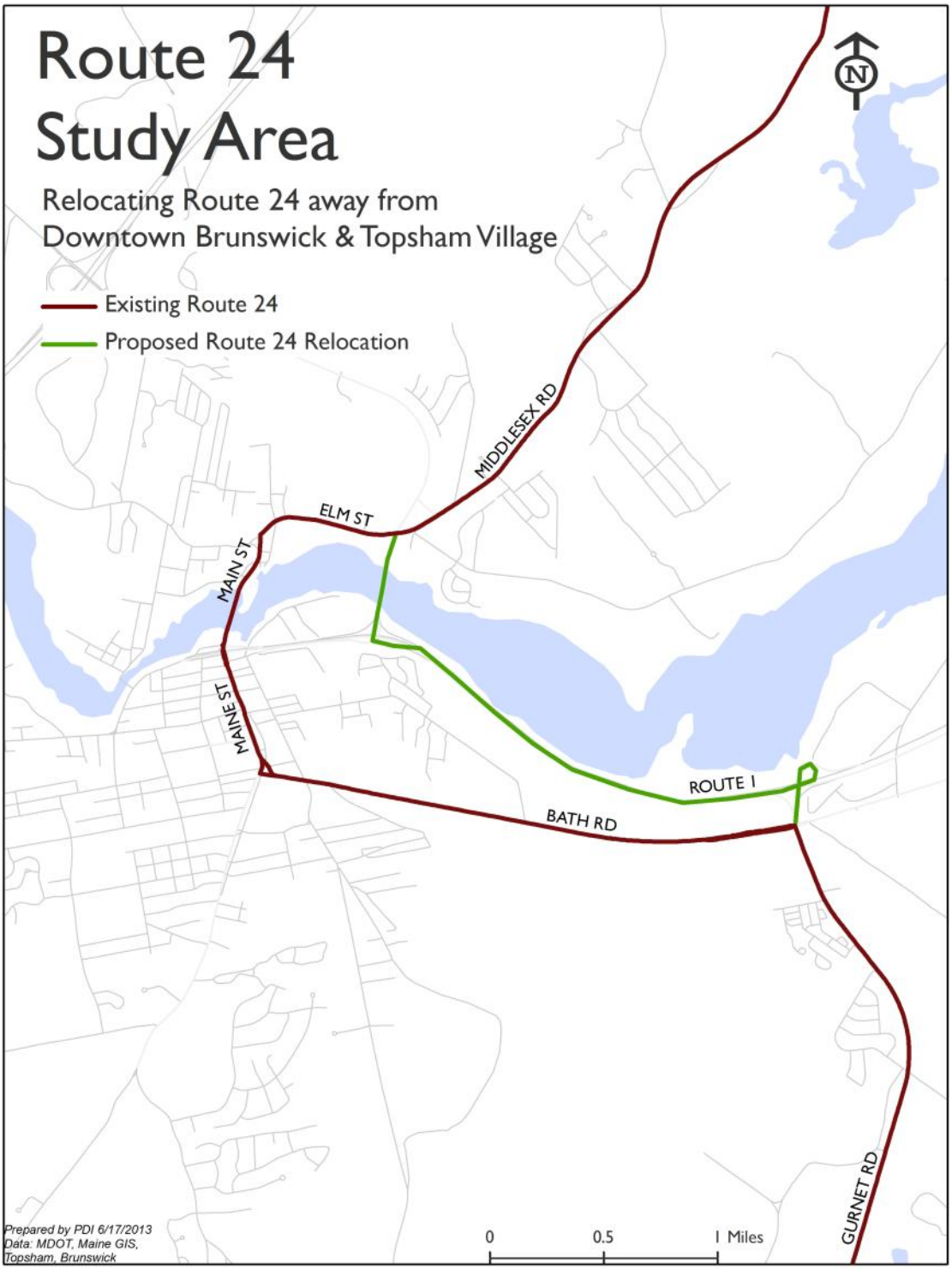
- Traffic Demand: Compare traffic on proposed route to traffic on existing routes in the same area.
- Highway Conditions: Compare pavement widths and shoulder widths on proposed route to conditions on existing routes in the same area.
- Directness: Compare mileage and speed on proposed route to produce an estimated travel time. Compare travel time on proposed route to travel time on existing route in the same area.
- Safety: Request and review accident summaries. Field review to look for hazards.
- Other Items: Look at density of routes already present in the area. Look at present configuration of signs in the area."

The re-routing can be done through Commissioner Record. Signs will then be changed and internal systems will be updated.

Strategy 2: Designate existing Route 24 as "Business 24" in Brunswick and Topsham.

[6] http://www.maine.gov/mdot/csd/mts/routenumbers.htm

Figure 26


Route 24
Study Area
Relocating Route 24 away from
Downtown Brunswick & Topsham Village
Existing Route 24
Proposed Route 24 Relocation
N
MIDDLESEX RD
ELM ST
MAIN ST
MAINE ST
ROUTE 1
BATH RD
GURNET RD
Prepared by PDI 6/17/2013
Data: MDOT, Maine GIS,
Topsham, Brunswick
0
0.5
1 Miles

X. Implementation

The following table identifies the action that will be taken to implement the strategies and objectives outlined above, as well as who is responsible and a time frame.

Table X-I: Route 24 Implementation Table

Objective 1: Ensure safe travel for all corridor users, including vehicle drivers, pedestrians and bicyclists		
Strategy 1: Adopt a "Complete Street"-style approach		
Action	**Who**	**Short-term/Long-term**
Future MaineDOT improvements on Route 24 should be targeted toward all users – including vehicle drivers, bicyclists and pedestrians.	MaineDOT	Long-Term
MaineDOT should work with interested organization to promote Complete Streets-style policies along Route 24.	MaineDOT	Long-Term
Route 24 towns should support efforts of the Bicycle Coalition of Maine, GrowSmart Maine and other organizations to promote Complete Streets-style policies in Maine.	Route 24 Towns	Long-Term
Strategy 2: Make improvements in paved shoulders and bike lanes		
Action	**Who**	**Short-term/Long-term**
The Merrymeeting Wheelers or other local organizations should extend the bikeability audit of Harpswell and	Local bicycle/pedestrian organizations	Short-Term

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Brunswick to all of the towns in the Route 24 study area – and include walkability audits in urban areas and village centers.		
Towns along Route 24 should create lists of targeted improvement areas for MDOT.	Route 24 Towns, MaineDOT	Short-Term
MaineDOT should stripe a fog line along Route 24 in locations where there is an 11-foot travel lane.	MaineDOT	Short-Term
MaineDOT should maintain existing shoulders and travel lane width along Route 24.	MaineDOT	Long-Term
Strategy 3: Ensure road maintenance to address poor conditions		
Action	**Who**	**Short-term/Long-term**
MaineDOT should sweep Route 24 shoulders every spring. The Merrymeeting Bridge should be swept in April (earlier than usual) because of the barriers.	MaineDOT	Short-Term
MaineDOT should repair Route 24 shoulders as part of other maintenance projects.	MaineDOT	Long-Term
Towns along Route 24 should meet every two years to discuss regional transportation priorities (in conjunction with MaineDOT biennial plan).	Route 24 Towns, Midcoast Council of Governments	Long-Term
Strategy 4: MaineDOT should widen and lift dangerous railroad trestles in Topsham and Richmond		
Action	**Who**	**Short-term/Long-term**
MaineDOT should work with Topsham and Richmond to	Topsham and Richmond,	Short-Term

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increase width and clearance of Route 24 under railroad trestles, making the road safer for vehicle drivers, pedestrians and bicyclists.	MaineDOT	
Strategy 5: Maine DOT and Route 24 towns should review road maintenance activities in environmentally sensitive areas.		
Route 24 towns and Maine DOT should review road maintenance activities – especially winter activities, like salting and sanding – for effects on environmentally sensitive areas, with a focus on stormwater runoff.	Route 24 Towns, MaineDOT	Short-Term/Long-term

Objective 2: Maintain the capacity of the corridor		
Strategy 1: Use access management and other tools to manage development impacts on the corridor		
Action	**Who**	**Short-term/Long-term**
Towns along Route 24 should explore using site plan review and other tools such as limiting access points, impact fees, and acceleration/deceleration lanes as appropriate to help maintain the capacity of the road and prevent unnecessary congestion.	Route 24 Towns	Long-term

Objective 3: Provide coordinated signage and marketing

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Strategy 1: Improve regional and local signage		
Action	**Who**	**Short-term/Long-term**
Towns along Route 24 should support Harpswell's legislative efforts to change signs along I-295.	Route 24 Towns	Short-Term
MaineDOT should use appropriate signage to encourage traffic to use appropriate roads - i.e., regional and through traffic should use Route 196, and local traffic should use Maine Street and Route 24.	MaineDOT	Short-Term
MaineDOT should maintain existing Route 24 road signs, ensuring their long-term legibility and providing a clear process by which towns can request sign replacements.	MaineDOT	Long-Term
Towns along Route 24 should work together to establish a shared format for regional wayfinding signs, including color, font, and logo.	Route 24 Towns	Long-Term
Strategy 2: Capitalize on ocean and water views as assets with value to tourism marketing efforts		
Action	**Who**	**Short-term/Long-term**
Towns along Route 24 should work together to promote common tourism efforts.	Route 24 Towns	Long-term
Towns along Route 24 should work with Chambers of Commerce and business associations on existing marketing efforts for the Route 24 area– including Allure of the Coast and Maine Invites You.	Route 24 Towns, Chambers of Commerce, Business Associations	Short-Term

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Towns along Route 24 should work together to create a common assets map that can be distributed to tourism and travel organizations, building on the draft created for this plan (Figure 23).	Route 24 Towns	Short-Term
Towns along Route 24 should consider pursuing a Scenic Byway designation for the road.	Route 24 Towns, Midcoast Council of Governments	Short-term

Objective 4: Address storm surge and future inundation, particularly with regard to emergency routes		
Strategy 1: Identify and respond to inundation threats to emergency routes		
Action	**Who**	**Short-term/Long-term**
MaineDOT should consider the impact of storm surge flooding on when making Route 24 road improvements, using models that show future inundation levels.	MaineDOT	Long-Term

Objective 5: Re-route Route 24 out of the downtowns of Brunswick and Topsham to remedy high traffic impacts, with consideration for Business 24 designation of the existing route in those towns.		
Strategy 1: Re-route the corridor out of downtown and historic Brunswick and Topsham		
Action	**Who**	**Short-term/Long-term**
The towns of Tospham and Brunswick, working with	Towns of Topsham and	Short-term

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Maine DOT, should undertake the public process necessary to start re-routing Route 24.	Brunswick	
The towns of Topsham and Brunswick, working with MaineDOT, should fill in any bicycle and pedestrian path gaps created by this re-routing.	Towns of Topsham and Brunswick, MaineDOT	Long-term
Strategy 2: Designate existing Route 24 as "Business 24" in Brunswick and Topsham.		
The towns of Topsham and Brunswick should work with MaineDOT to designate existing Route 24 as "Business 24" in their towns after the corridor is re-routed.	Towns of Topsham and Brunswick, MaineDOT	Long-term

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