

**CRUISE SHIP COMMITTEE**  
**PACKET OF MATERIALS**  
**MEETING JANUARY 11, 2016**

Cover page with date

Agenda

Minutes for approval

Supporting Documents

# AGENDA

## Bar Harbor Cruise Ship Committee

Monday, January 11, 2016

12:30 PM

Council Chambers

Municipal Building

93 Cottage Street

- I. Call to Order
- II. Approval of Minutes
  - A. December 10, 2015
- III. Adoption of agenda
- IV. Staff Reports
  - A. Ferry Terminal Property update
- V. Regular Business
  - A. Cottage Streetscape Design Plan budget request
  - B. Acceptance of "Bar Harbor Cruise Ship Monitoring Report 2015"
  - C. Acadia National Park Transportation Study Update.
  - D. Budget recommendations.
  - E. Cruise Ship Committee 2015 Annual Report to Town Council
- VI. Items for the next agenda
- VII. Set next meeting time, date and place for the next meeting.
- VIII. Adjournment

**Minutes**  
**Bar Harbor Cruise Ship Committee**  
**December 10, 2015**  
**Council Chambers – Municipal Building**  
**93 Cottage Street**  
**12:30 P.M.**

**I. CALL TO ORDER**

*Vice Chair James Collier called the meeting to order at 12:30 P.M.*

*Members present: Eben Salvatore, Chair, James Collier, Vice Chair; Amy Powers, Member, Anne Greenlee, Member, Jeff Dobbs, Member, Paul Paradis, Member, Sandy McFarland, Member; Charlie Phippen, Member; Jim Willis, Member; Greg Gordon, Member; Ken Smith, Member; Clare Bingham, Member; Duncan H. Holley; Lois Maltais; Melanie Graten and Robert Osborne, Secretary.*

*Also present: Cornell Knight, Town Manager; Jane Disney.*

**II. APPROVAL OF MINUTES**

**A. October 15, 2015**

*Mr. Paradis moved to approve the October 15, 2015 minutes as presented. Mr. Dobbs seconded the motion, and the Committee voted unanimously to approve the motion.*

**III. ADOPTION OF AGENDA**

*Mr. Paradis moved to adopt the agenda as presented. Mr. Dobbs seconded the motion, and the Committee voted unanimously to approve the motion.*

**IV. STAFF REPORTS**

**A. Ferry Terminal Property Update**

*Cornell Knight told the committee that there was nothing new to report at this time noting that there is no specific time for the closing on the property.*

**V. REGULAR BUSINESS**

**A. Environmental Monitoring Update.**

*Jane Disney, Ph. D. from MDI Biological Laboratory, Salisbury Cove, ME presented findings from the "Bar Harbor Cruise Ship Monitoring Report 2015"*

*in the form of a Powerpoint presentation. It was also provided in printed form and is attached to the minutes. She discussed the study including the sampling protocol and the pollutants tested for. She indicated that the water quality of the harbor is in very good condition and that the cruise ships are not creating a measurable amount of pollution.*

*Paul Paradis made a motion to thank Dr. Jane Disney for the presentation and to table acceptance of the report for the next meeting. Ken Smith seconded the motion. There was some discussion that the Committee review the report more thoroughly and that if there were any issues that they would be relayed to the Planning Director to send to Jane Disney. Cornell Knight indicated that the budget was adjusted from \$10,000 to \$8,000 and the Committee would continue to work with Jane Disney.*

*The item was called to a vote by James Collier. The Committee voted unanimously in favor of Mr. Paradis' motion to thank Dr. Disney for the presentation and to table acceptance of the report for the next meeting.*

#### **B. Acadia National Park Transportation Study Update.**

*John Kelly was not available to attend the meeting and the item was deferred to a later time.*

#### **C. Budget recommendations.**

*It was discussed if the environmental monitoring should be removed from the Cruise Ship budget and placed in the Town budget. Paul Paradis indicated he would not favor that approach because the public favors that the monitoring continue. It was noted that the budget has gone from a high of \$36,000 to \$8,000.*

*There was a motion to remove the environmental monitoring from the budget.*

*Cornell Knight indicated that he recommends against the motion because the costs are not known.*

*The Committee discussed going forward with the monitoring.*

*Ken Smith made a motion to reduce the monitoring to \$2,000 and Clare Bingham seconded the motion. The vote was six in favor and six against so the motion failed.*

*Charlie Phippen made a motion to set the monitoring budget at \$4,000 and Ken Smith seconded the motion. The Committee voted nine in favor and three against the motion. The motion was approved.*

#### **D. Develop a list of items to consider during annual review of the 2015 season**

*Eben passed out a draft list of items that he would suggest be considered during the annual review of the 2015 season. It was suggested that the list would be discussed at the next meeting.*

*A few items were mentioned including: Passenger spending about which it was suggested that the University of Maine could do a study. Drop-off issue; passenger cap; statistics that Charlie could provide; tender issues-collisions.*

## **VI. ITEMS FOR THE NEXT AGENDA**

*It was suggested that the environmental report from Jane Disney could be presented in December. The next meeting could have a draft report to the Town Council. It was discussed that perhaps a report/update could be done on the Park transportation study.*

## **VII. SET NEXT MEETING TIME, DATE AND PLACE**

*The next meeting was set for Monday January 11, 2016 at 12:30 PM. in the Council Chambers in order to coincide with special Council meeting.*

## **VIII. ADJOURNMENT**

*Mr. Phippen moved that the meeting be adjourned at 2:18 pm and Mr. Dobbs seconded the motion which passed unanimously.*

*Signed as approved:*

---

**Robert Osborne, Secretary**  
**Cruise Ship Committee, Town of Bar Harbor**

**Date**

## Robert Osborne

---

**From:** Basil Eleftheriou <basil.eleftheriou@gmail.com>  
**Sent:** Wednesday, December 30, 2015 3:23 PM  
**To:** Robert Osborne  
**Cc:** Eben Salvatore  
**Subject:** Cottage Street Streetscape Plan  
**Attachments:** Cottage-estimate.pdf

Item  
V A.

Members of the Cruise Ship Committee:

The Streetscape proposal for Cottage Street is one that will have great value to the residents of Bar Harbor but will also vastly improve the tourist and cruise ship passenger experience. Over the years Bar Harbor has seen many significant improvements within the town including Main and West Street's streetscape, Agamont Park, Village Green, restroom facilities adjacent to Agamont and the addition of Barker Park.

Cottage Street, however, has been woefully neglected. In recent years, many businesses have been shuttered or are no longer in existence. With improved streetscapes, I believe also will come increased vitality. As one of the primary and probably most heavily travelled streets in Bar Harbor I believe it is time to bring compliance needs and address aesthetic issues that will complement Bar Harbor. Some of the greatest concerns to be addressed in a streetscape re-design are as follows:

- Enhance the pedestrian experience

Benches, trash receptacles, bike racks  
Bulb outs (reduces pedestrian exposure to traffic)  
Wider sidewalks (where suitable)

- Increase ADA compliance (safety concerns, wheelchair, limited mobility, strollers)
- Improve possible future transit needs
- Remove 'sky pollution'

Add underground utilities  
Increase street lighting and make more attractive

- Landscape and plantings
- Improve Cottage Street to be a gateway to Bar Harbor

A necessary first step to any improvements is an evaluation of the project, goals to be realized, design and then finally a process to implement said design. A planner/landscape engineer should be retained to help achieve this. Attached to this letter you will find an estimate from Mike Rogers of Lark Studio. This estimate was requested from Robert Osbourne and was meant to provide a sense of how much a re-design may cost.

As a final thought, the concept of improving Cottage Street streetscape was endorsed by the Bar Harbor Planning Board and received overwhelming support from the Bar Harbor Town Council

Thank you for your time and consideration.

Sincerely,

Basil Eleftheriou, Jr.

December 9, 2015

Robert Osborne  
Planning Director  
Town of Bar Harbor  
93 Cottage Street  
Bar Harbor, ME 04609

**Re: Cottage Street Streetscape Project - Conceptual Design Estimate**

Dear Mr. Osborne,

Thank you for asking us to provide information for a potential Streetscape Conceptual Design project for Cottage Street. It would be a great pleasure to see this effort take place and hope this general estimate for what this type of project would entail helps in achieving this goal. Per our discussion with you, we have outlined below what we believe is an accurate critical path and estimate. This path has been designed with efficiency in time and expenses highly considered. With some uncertainty in a scope of services at this early juncture in the project, we have made many assumptions which may or may not be accurate. Please consider this in your analysis of this estimate. Further direction and decision making by the town could substantially alter the critical path, scope of services, and fee outlined below.

## **I. PROPOSED PROJECT CRITICAL PATH**

### **A. Initial Meeting with Town & Key Stakeholders**

The design team of your choice should host a kickoff meeting to review and further develop the program and parameters associated with the project. Gaining insight from key stakeholders will provide invaluable information for the designers and architects. Establishing a single point of contact for both the designers and town will help lend clarity to the ongoing process.

### **B. Site Reconnaissance**

The design team will want to take a close look at the project site. They will want to verify any survey information as well as take inventory of what the existing conditions are in a detailed manner. Photographs, measurements, and further interviews will be needed for creating Inventory and Analysis Plans. Trees, lights, utilities, curbing, ramps, grades, amongst other elements will be analyzed as part of this effort.

### **C. Inventory and Analysis Plans**

Based on the Site Reconnaissance an Inventory and Analysis Plan(s) should be created to help articulate and validate future design decisions. This is an easy way to explain to the general public what the problems are and why they exist.

### **D. Initial Conceptual Plans**

A minimum of three overall conceptual plans should be developed to provide a series of design solutions and options at varying levels of cost and/ or redevelopment. These initial plans will describe new layout options and suggest materials and furnishings. General cost estimates for the different design options and elements will help with future decision making.

**E. Business and Stakeholder Meeting**

Analysis and Initial Concept Plans will be greatly enhanced with input from businesses and relevant stakeholders. This will aid the town decision makers and designers in determining best options for moving forward. A more intimate meeting than a general public presentation can help encourage a more open flow of communication and ideas from those most effected my the project. This can lend greater clarity to important issues and help gauge reactions to the designs better.

**F. Public Presentation**

A general presentation of the Initial Conceptual Plans is also necessary to keep the general public informed. This will allow an outlet for comments and questions to be addressed.

**G. Revised Concepts**

Based on the public and stakeholder review meetings and direction from the town designated point of contact, a series of Revised Conceptual Plans should be created to advance the level of design and clarity for each of the concepts. Layout and materials should be annotated to give a clear idea what level of development is involved with each design. Cost estimates will also further develop, with specific costs for elements in place. Phasing Options can be suggested as part of this effort.

**H. Public Presentation**

A final, public presentation should describe the process and result of the Conceptual Design process. It is suggested that three levels of design be presented at this juncture to give development and cost options for the town and council to consider moving forward. High, medium, and low development and cost options provide an easier set of choices to be considered prior to moving the project into a Construction Documentation phase of design. The number of meetings this may require could be indeterminable, and thus has not been estimated here.

**II. DESIGN FEE ESTIMATE**

We estimate that this project following the path described above would cost anywhere between \$20,000 and \$30,000, depending on the bidding firms. With the level of information now available regarding this project, following the critical path described above, and using our standard rates listed below, the LARK Studio estimate for this project is \$24,000.

Principal	\$125/hour	Associate	\$75/hour
Sr. Associate	\$95/hour	Technician	\$55/hour

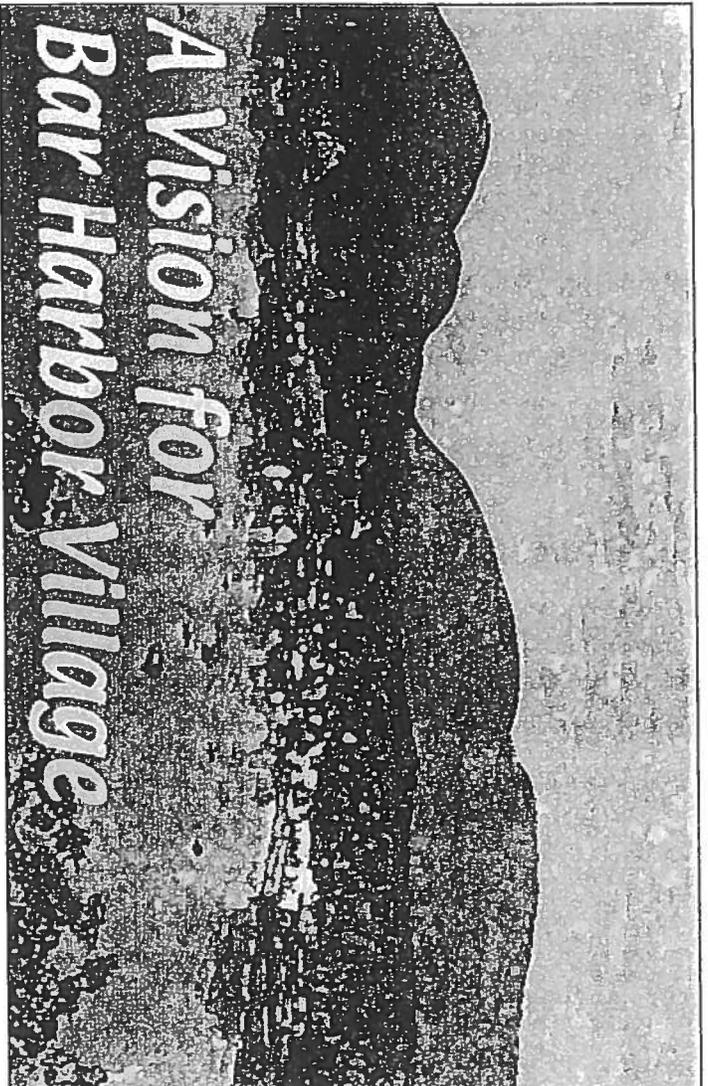
In most contracts of this type the expenses are billed at cost, mileage at the prevailing rate of \$.57 per/mile. If and when the need for additional consulting services arises, the firm of your choice should secure your authorization before engaging these services.

If you have any questions or comments regarding this estimate, please do not hesitate to contact us.

Sincerely,



Michael Rogers  
LARK STUDIO



# A Vision for Bar Harbor Village

*A Downtown Master Plan and Design Guidelines for Bar Harbor Village*

Prepared by Land Design Group, traditional town planners in association with Planning Decisions Inc.

January 15, 2001

*Revised February 15, 2001*

# Table of Contents

EXECUTIVE SUMMARY	5	PART III	DESIGN CONCEPTS	51	
ACKNOWLEDGMENTS	7	A.	The Overall General Plan .....	53	
PART I	INTRODUCTION	9	B.	Goals and Objectives .....	53
A.	Background and Goals .....	12	C.	The Physical Plan Districts/Character Areas .....	54
B.	Project Methodology .....	12	D.	Public Participation Workshops .....	54
C.	Study Area .....	12	E.	General Recommendation Highlights .....	54
			1.	Land Use and Zoning .....	56
			2.	The Waterfront .....	56
			3.	Village Center .....	57
			4.	Neighborhoods .....	57
			5.	Circulation and Traffic .....	58
			6.	Parking .....	58
			7.	Pedestrian Systems .....	59
			8.	Bikeway and Bike Parking .....	59
			9.	Transit Systems/Buses .....	60
			10.	Ferries .....	60
			11.	Streetscapes .....	61
			12.	Greens and Parks .....	61
PART II	INVENTORY AND ANALYSIS	13	F.	Detailed Design Concepts .....	62
A.	Regional Context .....	15	1.	Lower Main Street Streetscape Improvements .....	63
B.	Natural Environment & Setting .....	16	2.	Main Street Streetscape Improvements .....	64
C.	Overall Village Form .....	17	3.	Cottage Street Streetscape Improvements .....	65
D.	The Historic Environment .....	19	4.	Waterfront Gateway/ Water Taxi Transit Center .....	66
E.	Land Use & Zoning .....	21	5.	Carriage House Storefronts .....	67
	1. Current Zoning Provisions .....	21	6.	West Street Streetscape Improvements .....	68
	2. Design Review Provisions .....	22	7.	Cottage Street Streetscape Improvements .....	69
	3. Possible Issues .....	23	8.	Route 3 Entry Gateway Corridor .....	70
F.	Village Center - Visual Analysis .....	24	9.	Eden Street Greenway and Gateway .....	71
	1. Main Street .....	26	10.	Eden Street/Mt. Desert Street .....	72
	2. Lower Main Street .....	27	11.	Shore Path & Pedestrian Linkages .....	73
	3. Cottage Street .....	28	12.	Village Signage .....	74
	4. West Street .....	29	G.	Implementation Strategy .....	75
	5. Mt. Desert Street .....	30	1.	Overview .....	75
G.	Core Commercial Buildings .....	31	2.	Implementation of Design Guidelines .....	75
H.	Greens, Parks and Squares .....	32	3.	Implementation of Design Concepts .....	76
I.	Neighborhoods and Residential Areas .....	33	4.	Implementation of a Presentation Development Charrette .....	77
J.	Street and Circulation System .....	34	5.	Priorities .....	78
	1. Arterial Roadway System .....	35			
	2. Safety History .....	35			
	3. Traffic Flow .....	36			
	4. Field Observations .....	36			
	5. Circulation in Downtown Bar Harbor .....	37			
K.	Pedestrian Systems .....	38			
L.	Bikeway and Bike Parking .....	39			
M.	Transit Systems .....	40			
N.	Parking and Configuration .....	41			
O.	Streetscape Elements .....	43			
P.	Public Buildings and Civic Institutions .....	44			
Q.	Issues and Opportunities/Public Design Workshop #1 .....	45			

<b>PART IV</b>	<b>DESIGN GUIDELINES</b>	<b>79</b>
A.	Overview of the guidelines .....	83
	1. Introduction and background .....	83
	2. Character Areas .....	83
	3. Purpose of the Guidelines .....	83
	4. Structure of the Guidelines .....	84
B.	Design Principles .....	86
C.	Design Guidelines .....	87
	1. Core Commercial Area .....	87
	General Considerations .....	88
	1.0 Streetscape Improvements .....	89
	2.0 Building Height .....	90
	3.0 Building Width .....	91
	4.0 Building Setbacks .....	91
	5.0 Building Storefronts .....	92
	6.0 Building Roofs .....	93
	7.0 Windows and Doors .....	94
	8.0 Upper Stories .....	95
	9.0 Building Materials .....	95
	10.0 Franchise Buildings .....	96
	11.0 Signs .....	97
	2. Lower Main Street Commercial Transition Area .....	99
	General Considerations .....	100
	1.0 Building Orientation .....	101
	2.0 Building Forms .....	102
	3.0 Building Setback .....	103
	4.0 Building Entries .....	104
	5.0 Building Height .....	105
	6.0 Building Roofs .....	106
	7.0 Front Porches .....	107
	8.0 Front Yards .....	108
	9.0 Street Trees .....	109
	10.0 Fences Walls and Hedges .....	109
	11.0 Garages and Driveways .....	110
	12.0 Parking .....	111
	13.0 Franchise Buildings .....	112
	14.0 Sidewalks .....	113

3.	Cottage Street Commercial Transition Area .....	115
	General Considerations .....	116
	1.0 Building Setbacks .....	117
	2.0 Parking Lots .....	118
	3.0 Building Forms .....	119
	4.0 Building Height .....	119
	5.0 Building Roofs .....	120
	6.0 Building Materials .....	121
	7.0 Signage .....	122
	8.0 Lighting .....	122
	9.0 Street Trees .....	123
	10.0 Site Landscaping .....	123
	11.0 Drive Throughs and Gas Stations .....	124
	12.0 Franchise "Trademark" Buildings .....	125
	13.0 Sidewalks .....	126

<b>PART V APPENDICES</b>	<b>127</b>	
Appendix A	Historic Character .....	127
Appendix B	Analysis Maps .....	139
Appendix C	Building Elevations .....	141
Appendix D	Traffic Data .....	147
Appendix E	Support Data & Maps .....	149

# EXECUTIVE SUMMARY

## A. OVERVIEW

The economic vitality of Bar Harbor depends on maintaining attractive natural and built environments and capitalizing on the tremendous economic impact provided by nearby Acadia National Park. Preserving this scenic beauty and village character may be essential for a successful tourism economy and Bar Harbor's quality of life. A community's quality of life not only affects local well-being, but also local capability to attract and retain residents, and to draw visitors to the area.

## B. MASTER PLAN

The Master Plan is a composite, physically prescriptive plan for the Town of Bar Harbor. It charts the overall course and direction for the town to follow. The plan was completed through a fully open, interactive public involvement process. The Master Plan also provides a set of guidelines to help identify, evaluate, develop and preserve the downtown and surrounding areas. The plan includes both physical and policy recommendations.

## C. MISSION STATEMENT

It is the goal of the Master Plan and related projects and research to help ensure future community sustainability in Bar Harbor by identifying, reviewing, developing, and preserving the fabric and physical features of the town which help maintain its economic vitality and unique character.

Looking at the "big picture" is intended to guide many smaller projects. Certain projects may already be in the planning stages, and it is important that the Master Plan progress in conjunction with these other projects, and with the cooperation of the many town boards and committees, as well as the citizens of Bar Harbor. The Master Plan has been prepared to enhance the community experience and the vitality of the downtown area and its approaches.

## D. THE PLANNING PROCESS

The Master Plan consists of four separate but interrelated parts:

*Part 1 The Introduction* of this report presents the background and goals of the plan and outlines the planning process used.

*Part 2 The Inventory and Analysis* provides the essential background information on which the Downtown Master Plan design concepts, strategies and recommendations were based on. It also involved collecting input on issues from the community at public workshops.

*Part 3 Design Concepts & Recommendations* propose a series of summary recommendations that include policy considerations, and physical improvements. The concept plans include a series of perspective vignettes expressing ideas developed for the village districts and character areas. The sketches are inspired by traditional patterns of settlement, Bar Harbors historic prototypes and vernacular architectural traditions.

*Part 4 The Design Guidelines and Principles* represent a vision, for the kind of places that should be built, to maintain the unique visual character of Bar Harbor village.

## E. SUMMARY OF MASTER PLAN RECOMMENDATIONS

### 1. Village Design Improvements

The Downtown Master Plan includes a number of proposals aimed at reinforcing the unique character of Bar Harbor village. A few key recommendation follow:

*Route 3 Entry Greenway /Gateway Corridor* – The plan proposes improvements to Route 3, from the ferry terminal to West Street, by building upon and enhancing its good attractive qualities. The roadway corridor needs to accomodate cyclists; have consistent, quality signage and landscaping; address utility poles and lines and incorporate attractive informational signs.

*Eden Street Entry Gateway* – The plan proposes improvements to Eden Street and the intersections of West Street, Cottage Street and Mount Desert Street as a entry gateway to the village. This means developing a common design/landscape theme for the whole street yet making the three major intersections distinctive, memorable, and functional.

*Streetscape Improvements* – A number of infrastructure improvements are proposed for Main Street, Lower Main Street, Cottage Street, and West Street. The Downtown public improvements will provide functional support to pedestrian and vehicular circulation, and complement the building environment.

*Waterfront Gateway* – The plan proposes a small waterfront building on a new pier at Harborview Park. The building would provide a place for local small ferries, arriving passengers from water taxi's or cruise ship tenders. An information center would provide orientation and direction to Downtown shops. A bus stop would be located at Harborview Park.

*Shore Path* – The concept is to extend the shorepath from Harborview Park to "The Bar". The concept includes negotiating public access along the shore with the current owner.

## **2. Design Guidelines**

The design guidelines are intended to shape and maintain the civic realm and public character of the town. This include both public and private property.

The Master Plan divides the village into eight character areas that have distinctive visual environments based upon their historical development and use and current use. These eight areas are: the Core Commercial Area, Lower Main Street Commercial/Neighborhood Area, Cottage Street Commercial Transition Area, Mt. Desert Institutional Area, West Street Residential Area, Eden Street Entry Gateway Area, Rt. 3 Greenway/Gateway Area and the Neighborhood Areas.

The Master Plan provides design guidelines for the use, modification, expansion, redevelopment of property in three of these character areas, the Commercial Core, Lower Main Street, and Cottage Street. For each area, the Plan identifies the key features that contribute to the visual character of that area and then sets out guidelines for how those features should be treated to maintain the visual continuity and character of the area.

General considerations and goals for these three character areas are:

*Core Commercial Area* – The guidelines are intended to support and maintain that core commercial character by calling for connected buildings of similar heights and widths, shorefront windows, doors, roof shapes, and a complimentary streetscape.

*Lower Main Street Commercial/Neighborhood Transition Area* – The guidelines are intended to re-establish an historical neighborhood pattern and vernacular architectural traditions through infill or redevelopment of buildings and lots. A secondary goal for this area is to ensure that the district becomes a complimentary extension of the core commercial downtown Main Street District with a complimentary oriented business area.

*Cottage Street Commercial Transition Area* – The goal for this district is visual continuity based upon the vernacular "architectural traditions" and patterns that had successfully shaped the town in the past. A secondary goal for this area is to ensure that the district becomes a vibrant pedestrian oriented business area rather than just another line of commercial strip buildings with no historic relationship to the village.

## **3. Implementation**

This plan is a first step in an ongoing long term program. The key to implementation is long term leadership on two fronts, both public and private. This leadership will take many forms, from individual actions, to the coordinated actions of various organizations and initiatives by the Town.

The Plan sets out step-by-step the actions that the town needs to undertake to implement the plan and organizes these into a five year schedule of activities.

## ACKNOWLEDGMENTS

The authors gratefully acknowledge the assistance of Jim Campbell, Planning Director for the Town of Bar Harbor. We would also like to acknowledge the Downtown Master Plan Committee, under whose direction the project was conducted, for the overall guidance on this project.

### ***Downtown Master Plan Advisory Committee:***

*Dana Reed*, Town Manager  
*Jim Campbell*, Planning Director  
*Chip Reeves*, Public Works Director

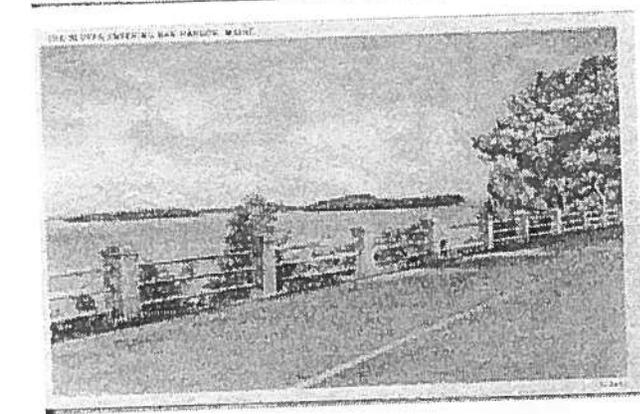
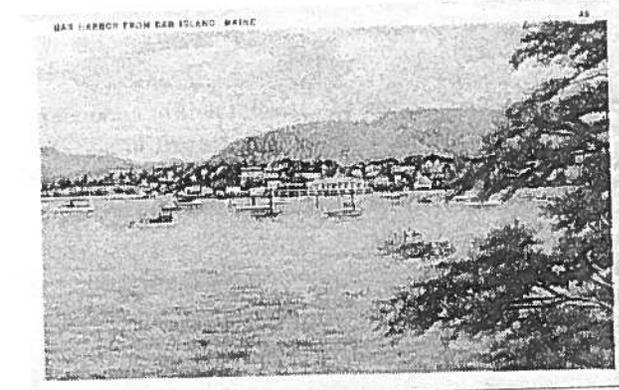
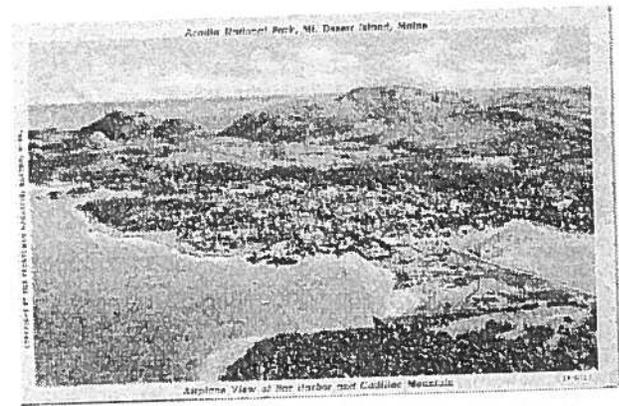
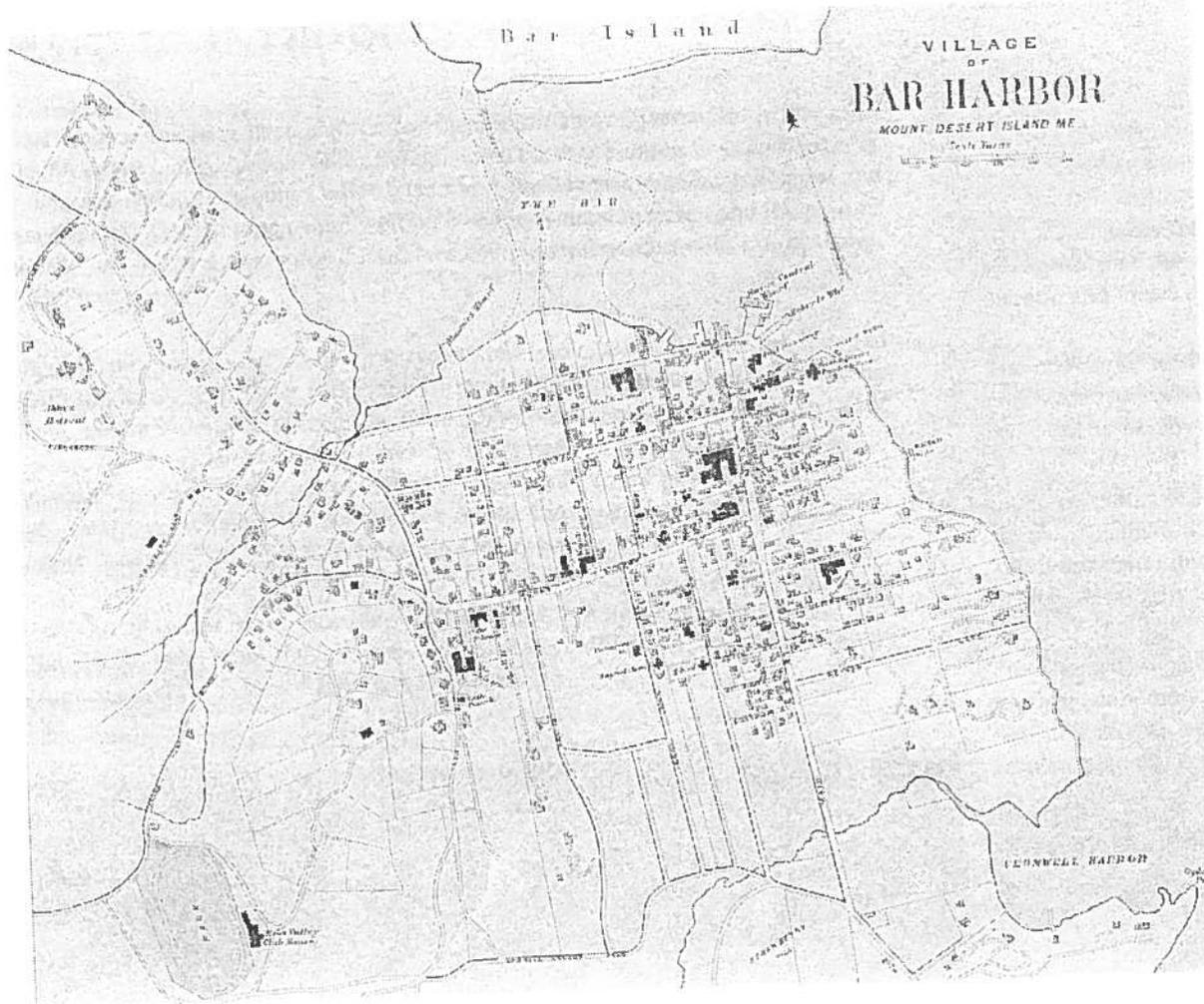
Les Brewer  
Sam Coplon  
Richard Cough  
Jeff Dobbs  
Jeff Hobbs  
Jullie Veilleux

The residents of the Town of Bar Harbor were directly involved in providing input for the plan through public workshops. Their efforts have helped shape the plan; we appreciate their ideas and enthusiasm.

This study was conducted for the Town of Bar Harbor by Land Design Group of Ellsworth and Kennebunk, Maine. Principal town planner and project manager was Victor I. Rydlizky. The associate landscape architect was James Fisk. Chris Glass was the historical architect. Mark Eyerman of Planning Decisions was the principal land use and zoning planner. Brian Kent, Urban Designer, of Kent Associates contributed to community participation and planning. Tom Gorrill, of Gorrill Palmer Consulting Engineers provided traffic and circulation planning and analysis. Perspective illustrations were created by Victor I. Rydlizky, James Fisk and Michael Lewis. Computerized mapping support was provided by Northern Geomatics. Photo imaging was created by John Kraljic based on photography by Victor I. Rydlizky. Video image stills provided by Dobbs Productions.

Funds were provided by the Town of Bar Harbor.

Thanks to Deborah Dyer, of the Bar Harbor Historical Society, for providing assistance as well as historic postcards and photographs.



# Part I

## INTRODUCTION

## PART I. INTRODUCTION

Bar Harbor has long been a place for inspiration and rejuvenation. In the mid-1800s artists of the Hudson Valley School, most notably Thomas Cole and Fredrick Church traveled to Mount Desert Island and Bar Harbor to paint seascapes and landscapes. The paintings were well received in American cities, and the patrons of the arts wanted to see for themselves the places depicted with oil, charcoal, paint and canvas.

At first, the "rusticators" as the first visitors to Mount Desert were called, boarded with the locals. But these early tourists wanted more amenities, and soon many large hotels were built to meet the demand. All of the old grand hotels are gone today, however, either burned down by the great fire of 1947 or torn down in succeeding years. A few places still offer a glimpse into the past and retain the air of yesterday, including the Bar Harbor Inn on the waterfront and the many fine estate "cottages" on West Street and Mt. Desert Street.

The rich character of the past plays an important role in the way people perceive Bar Harbor today. One of the objectives of the Master Plan is to preserve the unique character and the fabric of Bar Harbor village.



Bar Harbor, Maine. (Copyright 1900, W. H. Wood)

Images of the village character are often founded upon images of the district in earlier times, a context some may wish to recreate. However three "tenses" of the village district should be considered to fully describe the character of the village – the present condition, the historic character, and potential future development. As a basis for establishing design goals for the village district, it is important that the relationship of the current condition be clearly defined relative to the village's historic and future conditions.

The economic vitality of Bar Harbor depends on maintaining attractive natural and built environments and capitalizing on the tremendous economic impact provided by nearby Acadia National Park.

In the Inventory and Analysis phase which follows, the project team conducted a simple, objective documentation of the existing character of the village district. The team then compared this with the historical character to help it define the degree of integrity that the village district now retains.

Preserving this scenic beauty and village character may be essential for a successful tourism economy and Bar Harbor's quality of life. A community's quality of life not only affects local well-being, but also local capability to attract and retain residents, and to draw visitors to the area.

## A. BACKGROUND AND GOALS

The Downtown Master Plan Steering Committee developed the following definitions of the Master Plan.

**Master Plan:** The Master Plan is a set of guidelines to help identify, evaluate, develop and preserve the downtown and surrounding areas. The plan includes both physical (streetscape) and policy (LUZO, budgetary) recommendations. It also includes recommendations for surveys, landscaping, street furniture, paving, parking, pedestrian and vehicular circulation, utilities, signage, improvements for bicycles, safety and CIP funding.

**Mission Statement:** It is the goal of the Master Plan and related projects and research to help ensure future community sustainability in Bar Harbor by identifying, reviewing, developing, and preserving the fabric and physical features of the town which help maintain its economic vitality and unique character.

Looking at the “big picture” is intended to guide many smaller projects. Certain projects may already be in the planning stages, and it is important that the Master Plan progress in conjunction with these other projects, and with the cooperation of the many town boards and committees, as well as the citizens of Bar Harbor. We are creating this Master Plan to enhance the community experience and the vitality of the downtown area and its approaches.

## B. PROJECT METHODOLOGY

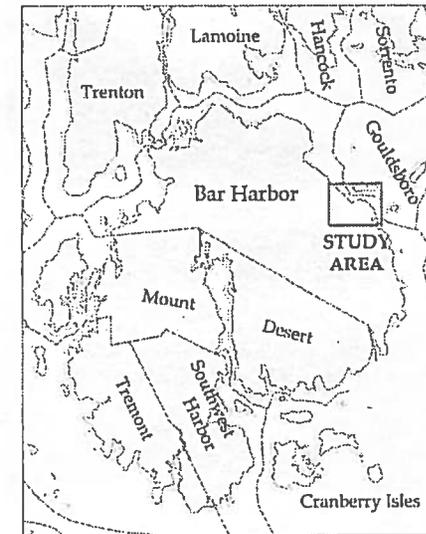
The Downtown Master Plan represent a collective vision for quality improvements to the Town of Bar Harbor’s public realm. The intent is to look strategically at the major systems that govern the physical form of the Town, and provide the overall framework and design direction for the village. With this in mind, a series of committee meetings and three design workshops were held to provide the opportunity for public input.

The overall project methodology consisted of three separate but interrelated major phases:

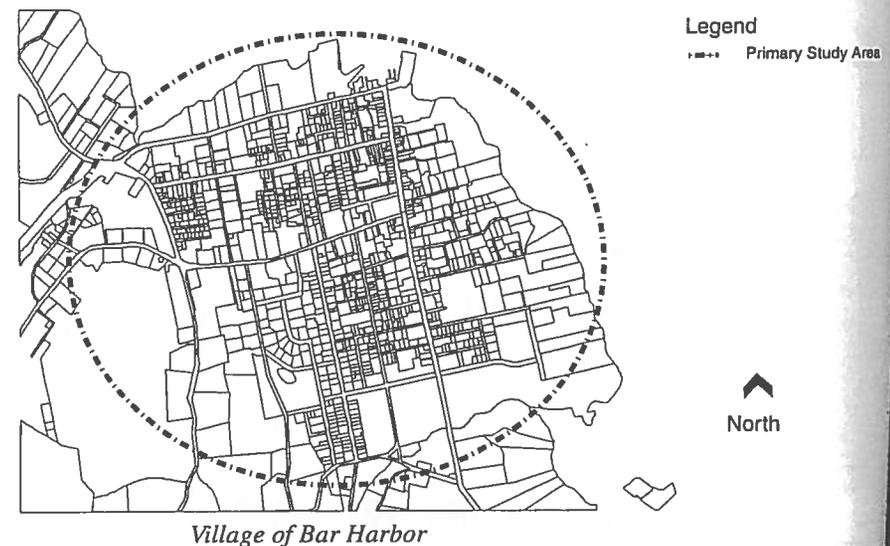
- Phase 1) Inventory and Analysis
- Phase 2) Planning & Concept Alternative Design
- Phase 3) Design Guidelines & Implementation

## C. STUDY AREA

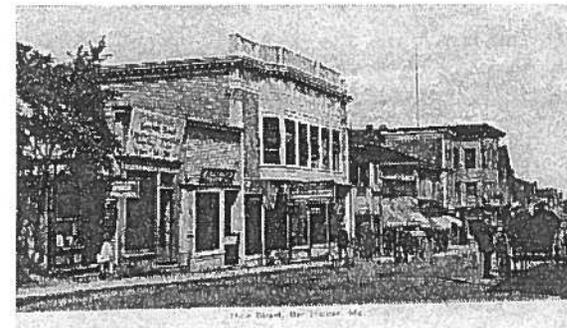
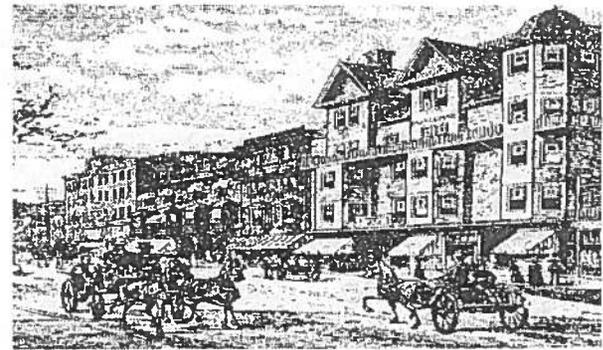
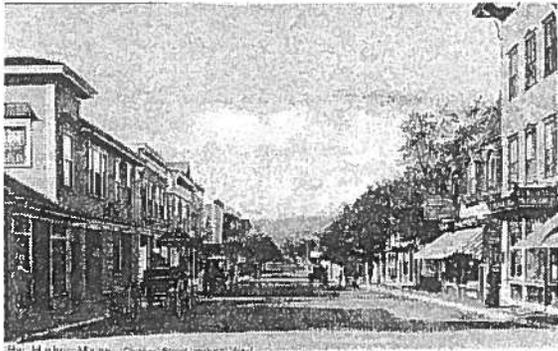
The primary study area consisted of that geographic area historically known as Bar Harbor Village. The area is bounded by the Harbor and Frenchmen's Bay to the North and East, by the ball fields to the south, and by Eden Street to the West. A secondary study area included the Route 3 approach corridor to the North, beginning near the ferry terminal and ending at West Street.



*Mt. Desert Island*



*Village of Bar Harbor*



# Part II

## INVENTORY & ANALYSIS

### 3. Cottage Street Commercial

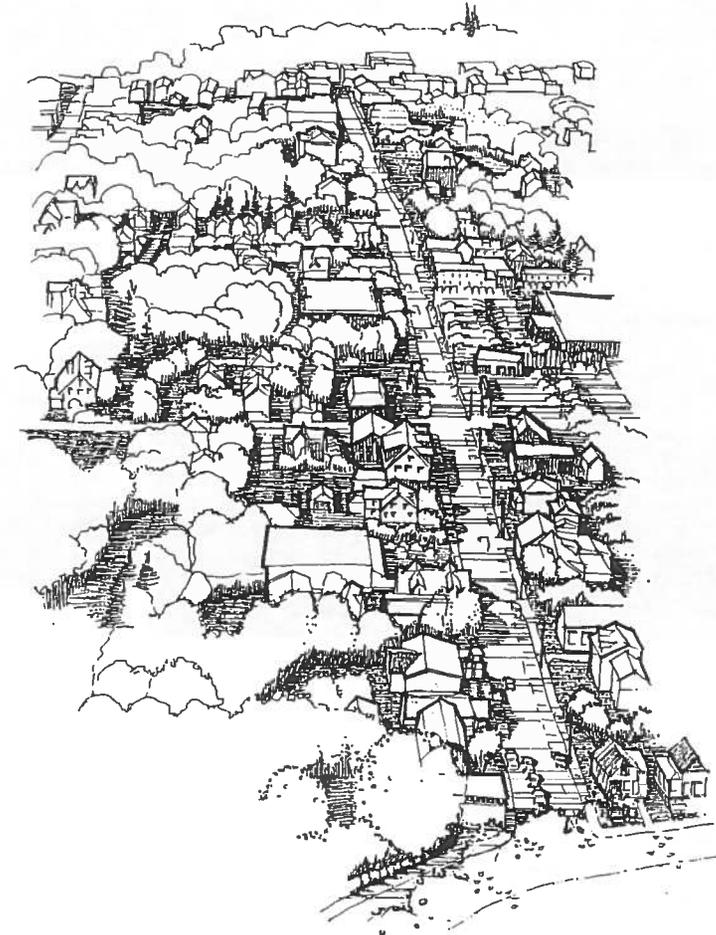
Cottage Street is the primary entry road and gateway into downtown. It is characterized by commercial land uses and civic buildings, such as the post office and the municipal building. The municipal building houses the Chamber of Commerce, which provides information services. This area is also home to the largest food store in town, an important necessity of daily life.

This area has a number of character personalities within its boundaries. Three of the most distinct areas are:

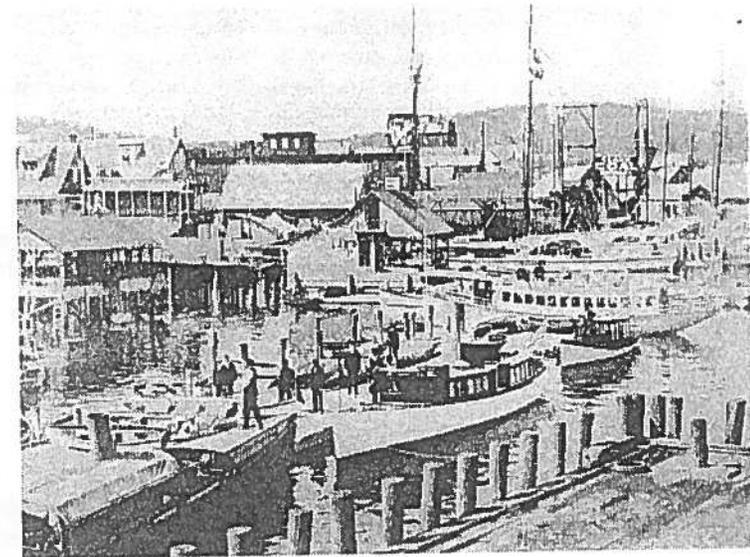
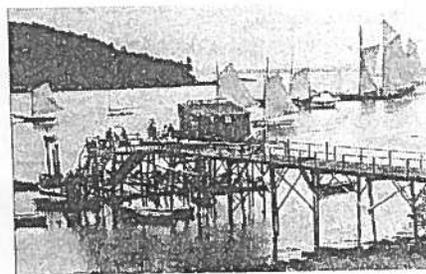
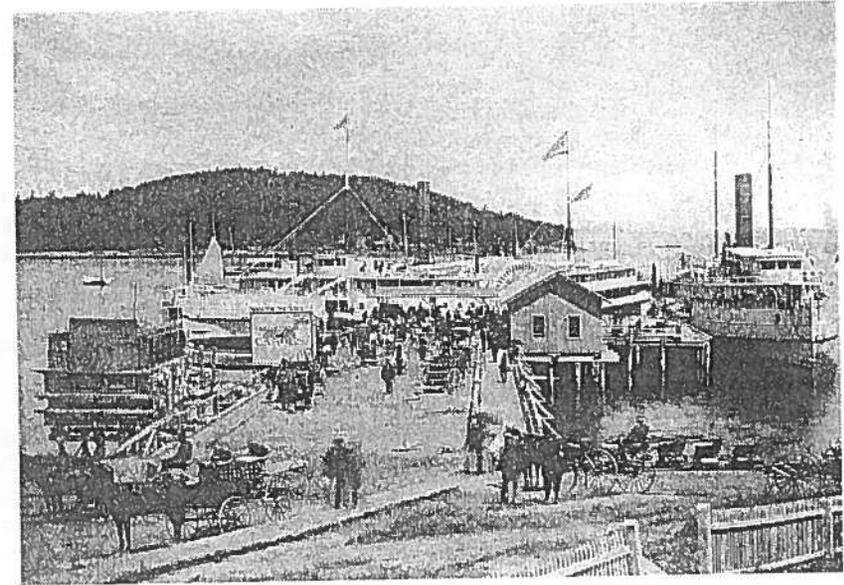
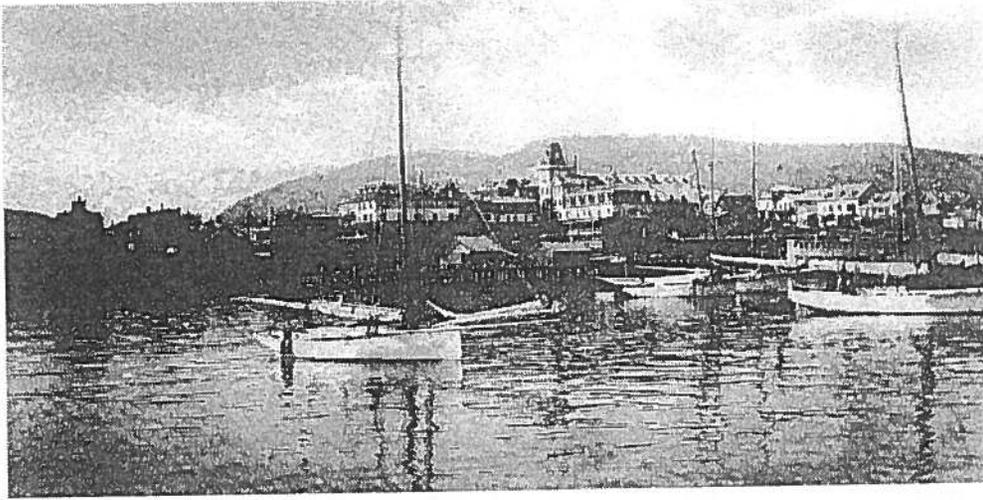
*The residential style zone* – one- to two-story neighborhood buildings adapted into retail, office and service establishments on the street’s west end. These buildings are sited with a small front lawn setback, or built right up to the sidewalk. Doorways typically face the street, and parking is provided at the side or rear. There are concrete sidewalks with granite curbs and utility pole-mounted street lights. Here, street trees and stone walls help to give structure to the streetscape.

*The strip-like transition zone* – with gas stations and parking lots fronting the street near the municipal building. The lack of a pedestrian environment is very apparent as sidewalks disappear into asphalt driveways over considerable distances. Here, some of the newer structures and parking lots do not complement the traditional village character.

*The traditional village commercial building zone* – with high-quality pedestrian amenities near the Main Street intersection. This area reflects characteristics of the Core Commercial Village Area. The streetscape treatment and amenities could be extended farther down Cottage Street to help reinforce the village district character.



COTTAGE STREET AREA



# Part III

## DESIGN CONCEPTS



## Cottage Street

### STREETSCAPE IMPROVEMENTS

**THE NEED** The Cottage Street streetscape near Holland Ave. has been identified as being one of the most pedestrian unfriendly and strip like areas in the village.

**THE CONCEPT** includes streetscape improvements to enhance the pedestrian environment and to bring the street and buildings into compliance with it's surrounding traditional character.

### THE ELEMENTS

Streetscape Improvements

Concrete sidewalks that continue through driveways and parking lots

Intersection bumpouts with crosswalks

Street Trees

Pedestrian scale street lights

### Suggested Building Improvements

2 Story Multi use Buildings, set back at street

Architecturally compatible facades that respect the pedestrian and public realm

Gas pumps for service stations set at rear of building under architectural canopy

## BAR HARBOR DOWNTOWN MASTER PLAN

### CONCEPTUAL PLANS

Land Design Group

Traditional Town Planners

January 15, 2001

# Cottage Street

Main Street To Rodick St.

## STREETSCAPE IMPROVEMENTS

**THE NEED** The sidewalks on Cottage Street near Main Street have also some of the highest pedestrian traffic in the village. The sidewalks are too narrow for the volume of shoppers and walkers. Additional pedestrian space is needed as well as a place to install bike racks.

**THE CONCEPT** The streetscape improvements would consist of pedestrian bumpouts similar to the existing Main street ones. The bumpouts would be located along Cottage Street where no parking zones already exist. The bumpouts would provide additional pedestrian space, room for street furniture, street trees and bike racks.

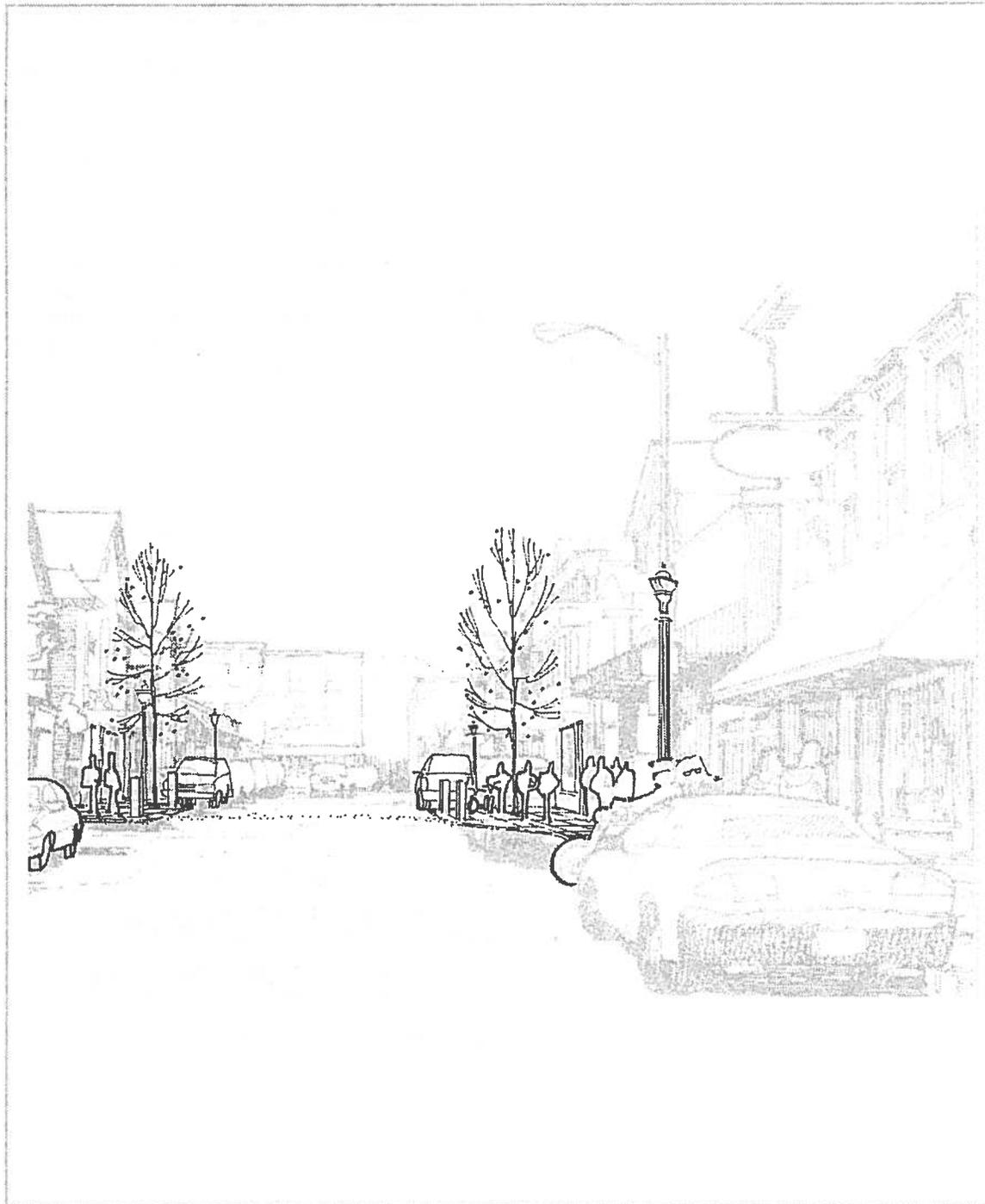
## THE ELEMENTS

Pedestrian peninsulas, granite, brick and concrete

Bike racks installed on peninsulas

Pedestrian scale street lights

Removal of overhead utility poles and lights



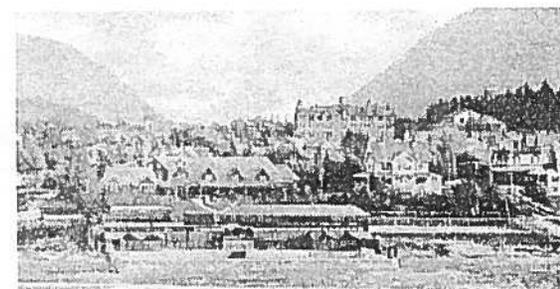
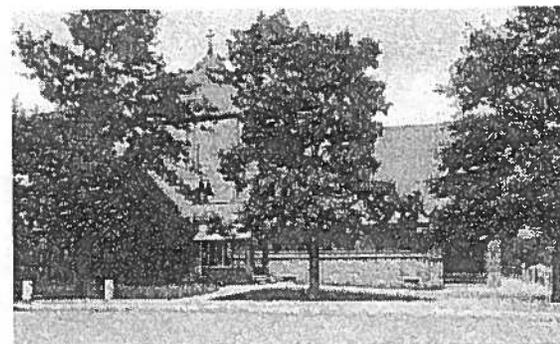
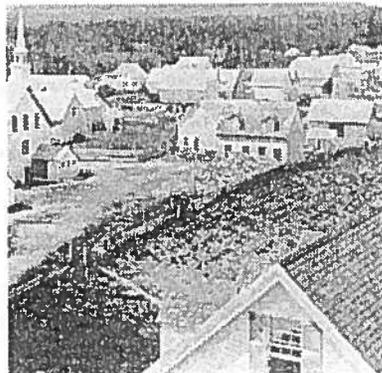
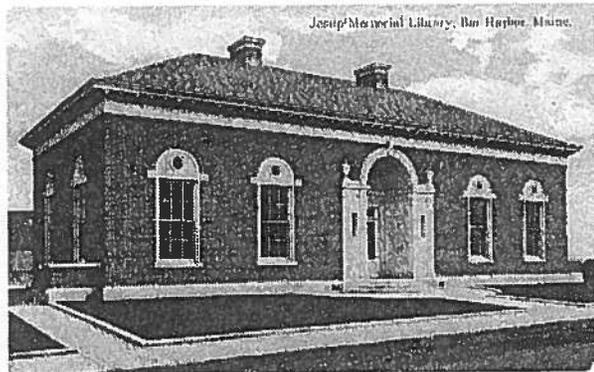
## BAR HARBOR DOWNTOWN MASTER PLAN

### CONCEPTUAL PLANS

Land Design Group

Traditional Town Planners

January 15, 2001

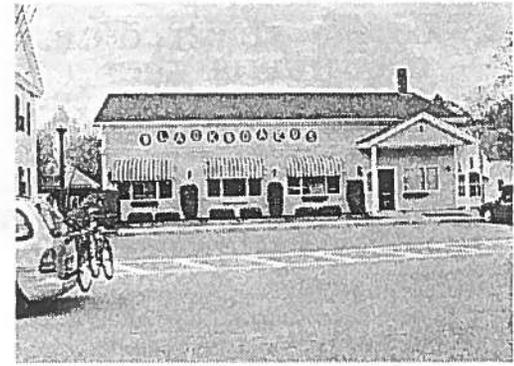


# Part IV

## DESIGN GUIDELINES

# DESIGN GUIDELINES

## 3. COTTAGE STREET COMMERCIAL TRANSITION DISTRICT



### 3. COTTAGE STREET COMMERCIAL TRANSITION DISTRICT

#### *General Considerations*

#### **MAINTAIN THE CHARACTER AND INTEGRITY OF THE COMMERCIAL TRANSITION DISTRICT**

The Cottage Street commercial transition district is characterized by a mix of traditional residential buildings, traditional "Main Street" commercial buildings, and the typical form of commercial strip buildings related to roadside sprawl.

Bar Harbor greatly values its history and historic resources. These types of features are not as prominent along Cottage Street as they are in the historic districts, corridors, and downtown core. But salvable aspects of the village past should be preserved and encouraged both to connect with the village heritage and to create a smoother transition between Eden Street, adjacent historic districts, and the downtown core.

The goal for this district is visual continuity based upon the vernacular "architectural traditions" and patterns that had successfully shaped the town in the past.

A secondary goal for this area is to ensure that the district becomes a vibrant pedestrian oriented business area rather than just another line of commercial strip buildings with no historic relationship to the village.

## TABLE OF CONTENTS

### *General Considerations*

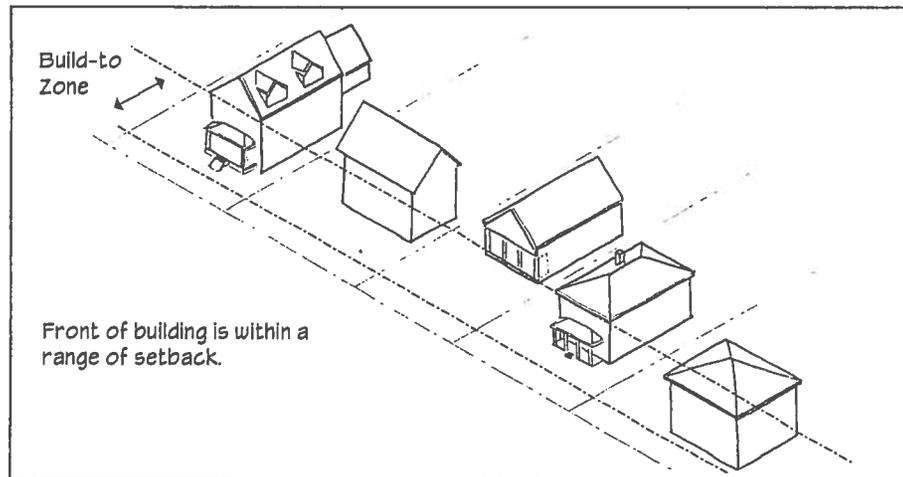
1.0	Building Setbacks .....	115
2.0	Parking Lots .....	116
3.0	Building Forms .....	117
4.0	Building Height .....	117
5.0	Building Roofs .....	118
6.0	Building Materials .....	119
7.0	Signage .....	120
8.0	Lighting .....	120
9.0	Street Trees .....	121
10.0	Site Landscaping .....	121
11.0	Drive Throughs and Gas Stations .....	122
12.0	Franchise "Trademark" Buildings .....	123
13.0	Sidewalks .....	124

## 1.0 BUILDING ALIGNMENT AND SETBACKS

### ***MAINTAIN THE RANGE OF BUILDING ALIGNMENTS AND SETBACKS FOUND IN THE DISTRICT***

A variety of building alignments and a range of variations in setbacks creates diversity within an overall consistency of buildings lining the street. The best features that contribute to visual continuity should be encouraged and maintained.

- 1.1 Buildings should be located at the edge of the street within a setback range of 0 setback to 20 feet maximum. A build-to zone is encouraged.
- 1.2 Building faces should be parallel to the street with major roof ridges either parallel or perpendicular to the street.
- 1.3 Use fences, walls, and hedges to define the building properties' relationship to the street.



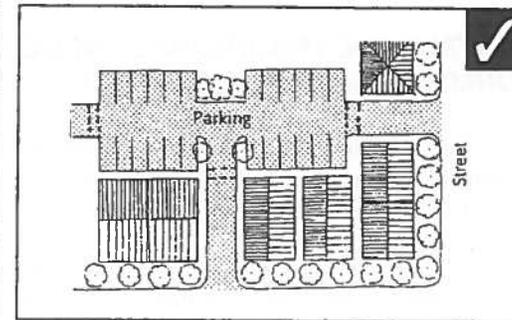
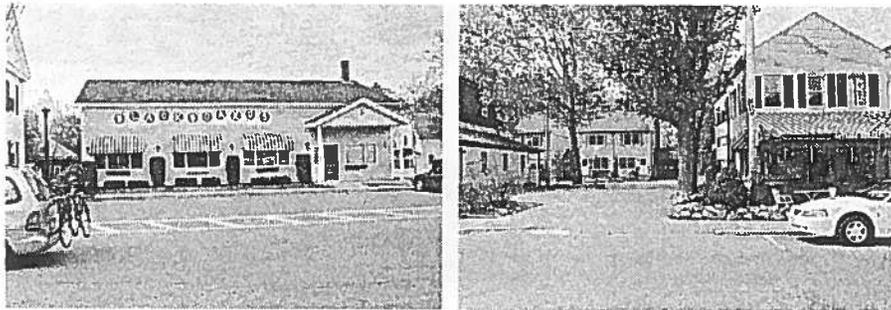
Setbacks vary, but generally fall within an established range.

## 2.0 PARKING LOTS

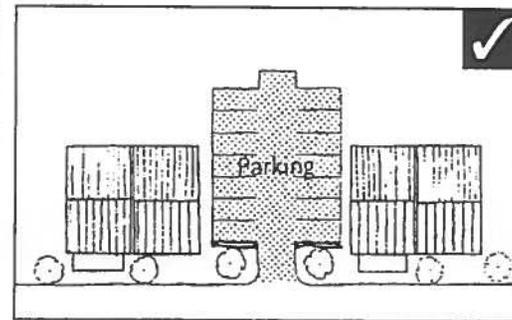
### LOCATE PARKING LOTS TO THE REAR OR SIDE OF BUILDINGS

Parking lots along the street destroy the continuity and scale of the built environment along the street. Parking in front of buildings disrupts the safe walking space of the pedestrian. Maintaining the pedestrian environment is encouraged.

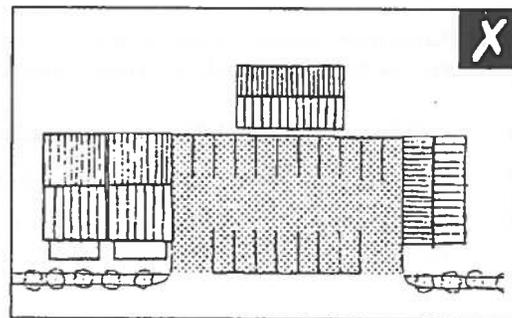
- 2.1 Parking lots should be located to the rear of buildings or, if that is not possible, to the side with the lot screened.
- 2.2 Parking in sideyards should be screened from the street and should be kept behind the front wall of the building.
- 2.3 Parking lots in front of buildings are not allowed.



Parking lots should be located behind buildings.



Parking in side yards should be screened from the street.



Parking in lots in front of buildings is prohibited.

## 3.0 BUILDING FORMS

### ***MAINTAIN THE TRADITIONAL RANGE OF BUILDING FORMS FOUND IN THE DISTRICT***

The district is characterized by a variety of building forms within an overall consistency of building forms lining the street. The vernacular architectural traditions that have shaped the town in the past should be maintained.

- 3.1 The massing of larger commercial buildings should be scaled down into smaller masses to harmonize with traditional scale commercial and residential buildings.
- 3.2 The use of projecting and recessed sections with appropriate scaled roof forms to reduce apparent overall bulk and volume is encouraged.

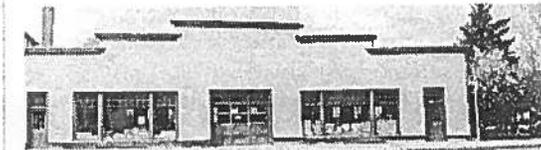


## 4.0 BUILDING HEIGHT

### ***MAINTAIN THE VARIETY OF BUILDING HEIGHTS WITHIN THE TRADITIONAL RANGE.***

Building height helps to create the edge of the public space along the street. In order to maintain this feature, new buildings should have a height similar to those seen traditionally.

- 4.1 Buildings of one and a half to two and a half stories are encouraged.
- 4.2 Building height limits are 35' and two and a half stories.
- 4.3 One story buildings are considered too low to contribute to the public realm along the street and are discouraged.

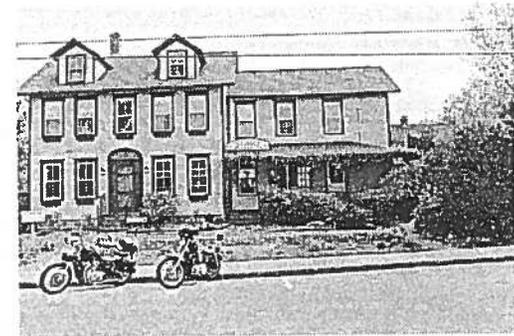


## 5.0 BUILDING ROOFS

### ***MAINTAIN THE VARIETY OF TRADITIONAL ROOF FORMS FOUND IN THE DISTRICT***

The character of the roof is a feature of buildings in the district. A diversity of roof forms reinforces the district's traditional but varied character. This should be maintained.

- 5.1 Sloping roofs such as gable and hipped roofs are appropriate for residential type structures.
- 5.2 Flat roofs articulated with parapets and cornices are appropriate for traditional main street type commercial structures.
- 5.3 Visible flat roofs or low pitched roofs are prohibited.

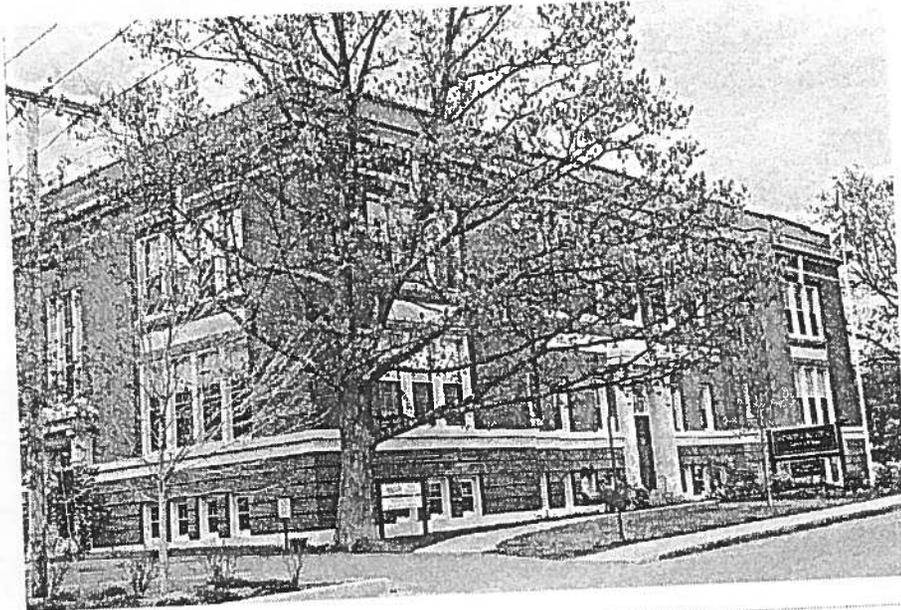


## 6.0 BUILDING MATERIALS

### ***MAINTAIN THE TRADITIONAL BUILDING MATERIALS USED IN THE DISTRICT***

Traditional materials, such as singles with wood trim and wood clapboards, are major features found in the district. These materials contribute to the visual continuity and should be maintained.

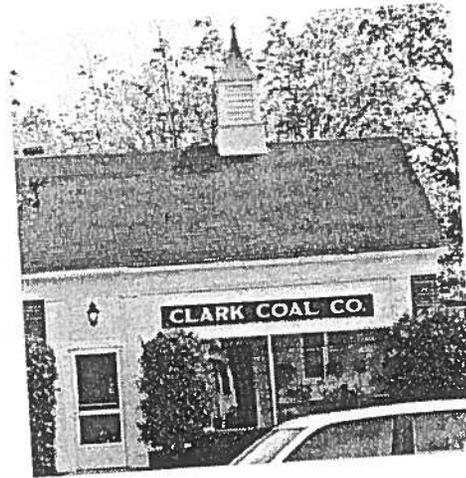
- 6.1 Traditional building materials found in the district as wood clapboard, brick, or native stone of a shape, color and texture found in Bar Harbor village are encouraged.
- 6.2 Concrete block and metal buildings are discouraged in the district.
- 6.3 Conformance to building material standards as defined in the Bar Harbor's land use ordinance is required.



## 7.0 SIGNAGE

### **MAINTAIN SIGNAGE THAT IS COMPATIBLE WITH LOCAL VERNACULAR ARCHITECTURE AND BUILDING MATERIALS**

- 7.1 Natural materials as wood and metal are encouraged.
- 7.2 Wall signs are encouraged on traditional commercial "block" buildings above the storefront.
- 7.3 Buildings that were originally residential are encouraged to use freestanding signs
- 7.4 Internally illuminated "box signs" are discouraged.



## 8.0 LIGHTING

### **PROVIDE FOR PEDESTRIAN SCALE STREETLIGHTS ALONG THE STREET**

- 8.1 Utilize pedestrian scale light poles in the 12-18 foot range.
- 8.2 Pedestrian scale street lights that compliment those on Main Street in character and style are encouraged.

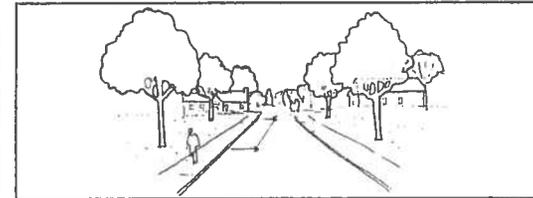


## 9.0 STREET TREES

### ***MAINTAIN TREES ALONG THE STREET***

Street trees contribute to the overall character and pedestrian environment of the district. This element should be maintained.

- 9.1 Provide street trees along each side of the street as a central unifying feature within the right of way.
- 9.2 Provide street trees at intervals no greater than 40 feet along both sides of the street.

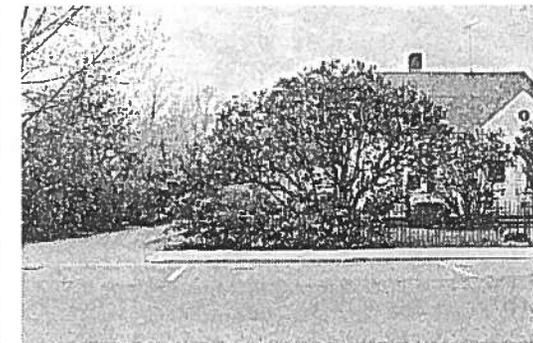


## 10.0 SITE LANDSCAPING

### ***MAINTAIN AND INCORPORATE THE NATURAL LANDSCAPE INTO THE DISTRICT***

Incorporating the natural landscape into the built environment contributes to the character and pedestrian environment. This element should be encouraged and maintained.

- 10.1 Landscaping around commercial buildings and their parking lots shall emphasize native species of trees, shrubs, and ground cover to reinforce the natural character of the village area.

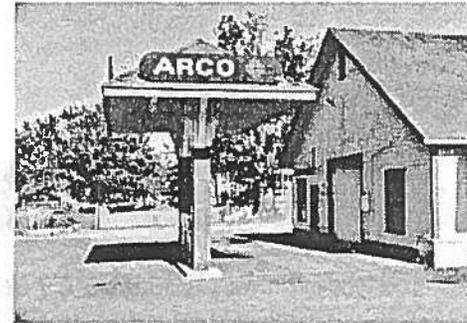


## 11.0 DRIVE-THROUGHS AND GAS STATIONS

### **MAINTAIN THE LOCAL VERNACULAR ARCHITECTURAL TRADITIONS**

Ensure the compatibility of franchise design, drive-throughs, and gas stations with local vernacular architectural traditions and patterns maintaining these elements is encouraged.

- 11.1 Building should reinforce the local vernacular architecture style of the village to achieve harmony between the structure and its neighbors.
- 11.2 Landscape design elements such as trees, signs, walls, and fences should bind the facility into the larger streetscape fabric.
- 11.3 Architecturally compatible drive-through structures or pump shelters should reflect the local vernacular character of the village.
- 11.4 Siting gas stations and drive-throughs should conform to building alignments, setbacks, parking lot, and curb cut requirements.



*Example of gas stations and canopys that maintain local vernacular architectural traditions.*

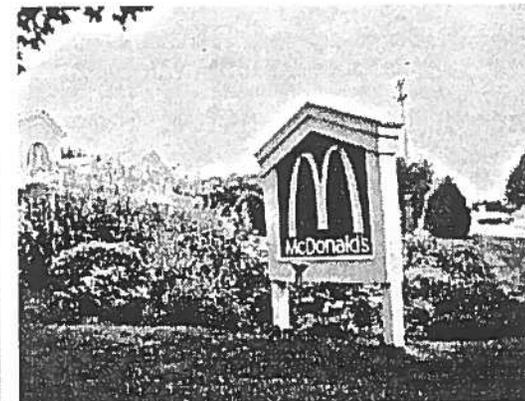
## 12.0 FRANCHISE "TRADEMARK" BUILDINGS

### ***MAINTAIN THE TRADITIONAL BUILDING IMAGES IN THE NEIGHBORHOOD DISTRICT***

Franchise Trademark Buildings such as gas stations and fast food restaurants with a standardized advertising icon can detract from the visual continuity of the area and distinct identity of Bar Harbor village.

Maintaining the traditional building images in the Cottage Street District is encouraged.

- 12.1** Franchise buildings that are compatible with the visual character and distinctive identity of the district are allowed. Elements of scale, height, composition, use of materials, siting, landscaping, and signage are used to ensure compatibility of franchise design.



*Example of a franchise building and signage that is compatible with the village character in Freeport, Maine.*

## 13.0 SIDEWALKS

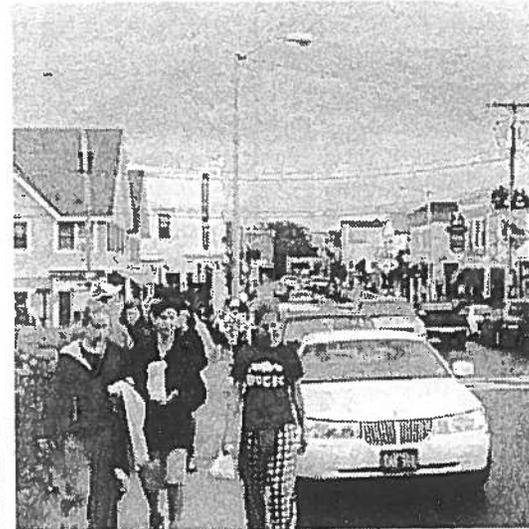
### ***MAINTAIN A CONTINUOUS SYSTEM OF SIDEWALKS IN THE DISTRICT***

Sidewalks are the fundamental pedestrian element on Bar Harbor's streets. They provide visual – as well as physical connections in the village. A continuous system of adequate sidewalks should be maintained.

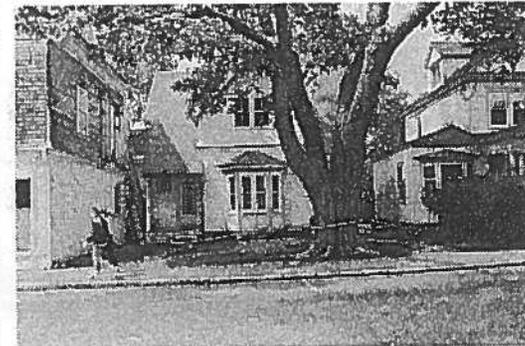
- 13.1 Provide a continuous sidewalk improvement along both sides of the street. Close gaps along driveways and parking areas by clearly delineating the sidewalk.
- 13.2 Provide a standard concrete sidewalk, with a preferred minimum width of five feet when possible. Conform to ADA minimum passing space and handicap ramp requirements.
- 13.3 Provide space for pedestrian – scaled lighting and street trees to establish a human scale pedestrian environment.
- 13.4 Provide pedestrian and sidewalk improvements on all new and redevelopment street projects.



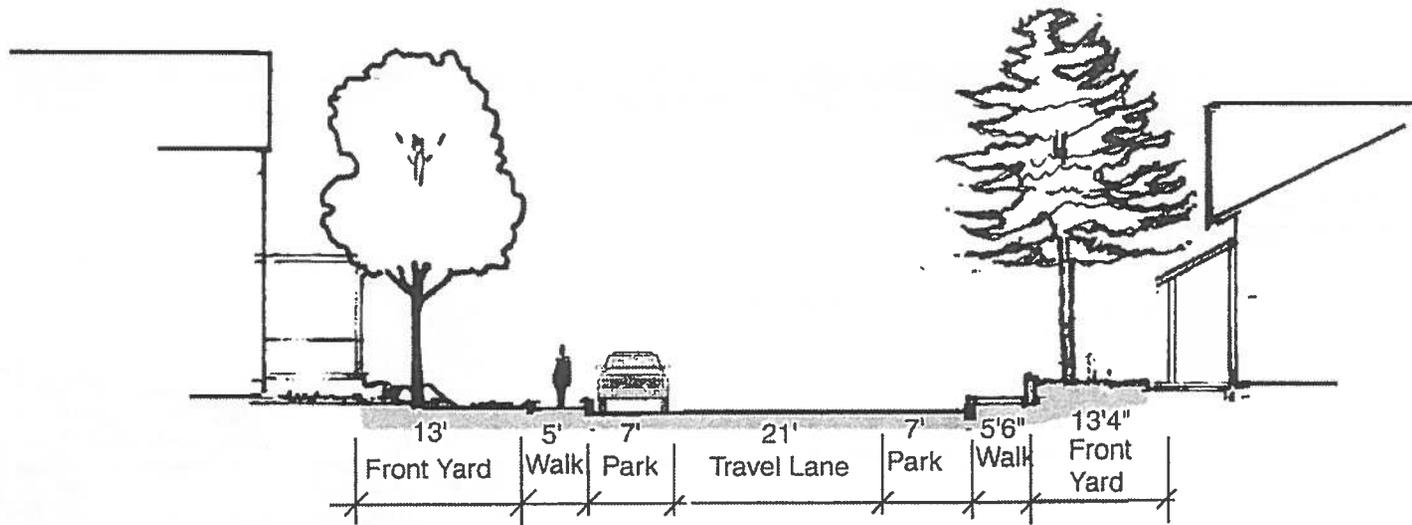
An area on Cottage Street with no continuous sidewalks.



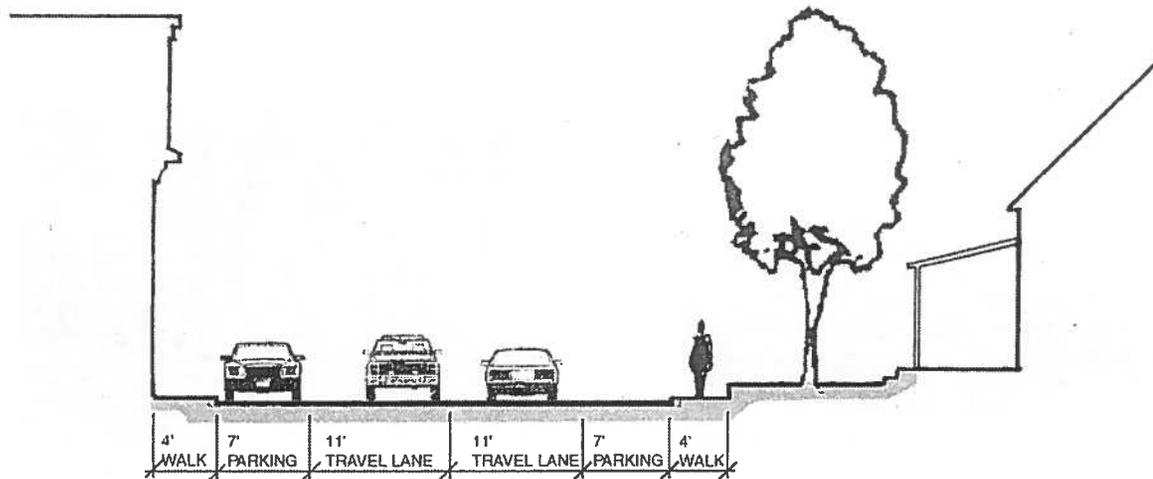
Sidewalks contribute to an active pedestrian environment.



Sidewalks and street trees contribute to Bar Harbor's character.



Typical Cross Section/ Existing Conditions  
Lower Main Street



Typical Cross Section/ Existing Condition  
Cottage Street

## Street Sections Downtown Bar Harbor Village Master Plan

Prepared by Land Design Group  
Traditional Town Planners

# COTTAGE STREET



Item  
IV B.

# Bar Harbor Cruise Ship Monitoring Report 2015

Jane E. Disney, Ph.D. and Anna Farrell  
Community Environmental Health Laboratory  
MDI Biological Laboratory  
Salisbury Cove, ME 04672

## Executive Summary

Water quality in the port of Bar Harbor was monitored between May and October 2015 by staff and volunteers from the Community Environmental Health Laboratory at MDI Biological Laboratory in Salisbury Cove, ME. Sample sites included the Town Pier, offshore cruise ship anchorages designated Alpha and Bravo, and control site Bell Buoy #7 (see Figure 1). We also sampled weekly at the Town Pier when no ships were present. The Bar Harbor harbormaster transported monitors to the offshore anchorages. Water samples were analyzed for phytoplankton, biological oxygen demand, dissolved oxygen, nutrients, salinity, transparency, turbidity, chlorine, and *Enterococcus* bacteria.

## Bar Harbor, Maine Cruise Anchorages



Data Sources:  
Maine DMR  
ME Office of GIS

MDI Biological Laboratory

Map prepared by Anna Farrell  
MDI Biological Laboratory 2015

**Figure 1. 2015 cruise monitoring stations in Bar Harbor, Maine: Alpha, Bravo, Control Site Bell Buoy #7, and Town Pier.**

## Introduction

As the world's population expands, the oceans experience an increasing risk of pollution from a variety of land and marine uses. It is estimated that 80% of marine pollution comes from land-based activities. However substandard ships or poor shipping practices are also contributing to marine pollution (WWF, 2015).

Cruise ships are also a potential source of marine pollution. A typical cruise ship with 3,000 passengers can generate up to 25,000 gallons of human waste and 143,000 gallons of gray water from showers and sinks each day (Oceana, 2014). There is immense potential for water quality impacts, should an accidental or intentional discharge occur.

Cruise ships are essentially floating cities because they provide all of the services that individuals would need and can receive on land (Oceana, 2014). Although land based sewage treatment systems are strictly regulated by The Clean Water Act (40 CFR 122.3), gray water and black water discharges from cruise ships are only regulated in a couple of states.

Since January 1, 2006, Maine legislation (38 M.R.S.A. §423-D) has required large passenger vessels to have a general permit for the discharge of gray water or a mixture of gray water and black water (DEP Permit #W008222-5Y-A-N). In addition, this legislation requires that large passenger vessels adhere to strict discharge standards that require a certain level of water quality be attained by secondary treatment before discharge within a harbor. Despite this legislation requiring large passenger vessels to obtain a permit before discharging in Maine waters, no ships have applied for a permit in the state of Maine, and there are many boats to which these requirements do not apply. Large commercial passenger vessels are defined in Maine statute as commercial passenger vessels that provide overnight accommodations for 250 or more passengers for hire. The ships that visit the town pier in Bar Harbor, are all considered small commercial passenger vessels.

Although small commercial passenger vessels are exempt from the regulations outlined in 38 M.R.S.A. §423-D, there are best management practices recommended by the cruise industry, US EPA, and the US Coast Guard which are outlined in the Town of Bar Harbor Cruise Tourism Destination Management Plan (2007). These include black water discharges being limited to those that meet effluent guidelines and discharges being limited to when the vessel is proceeding at a speed not less than 6 knots where the ship is more than 4 nm from shore. It is also recommended that ships voluntarily prohibit discharge of gray water while in port and that gray water discharges be limited to when the ship is underway and proceeding at a speed not less than 6 knots where the ship is more than 4 nm from shore.

Despite these guidelines, a small passenger cruise ship, *Independence*, discharged wastewater that was visible to passers-by at the Town Pier in 2010 and again in 2011. Confirmation of these discharges by follow-up water quality monitoring opened lines of communication with the cruise agency and led to apologies and pledges to refrain from these discharges in the future. It also opened up discussion about the need for a pump-out station at the Town Pier.

It is Bar Harbor's policy that visiting ships hold all waste while in the harbor. This is based on best practice recommendations from a variety of federal and state entities. There are no federal or state mandates that support this policy where small cruise passenger vessels are concerned; therefore there is

no outside entity that will check for compliance of Bar Harbor's policy if Bar Harbor does not do so. Checking for compliance with harbor policy regarding discharge of waste water sends a message to visiting ships that water quality is important to citizens of Bar Harbor. Water quality monitoring may serve as a deterrent to discharging of wastewater by all types of vessels visiting Bar Harbor. Not only can wastewater discharges affect the health of the ecosystem, but they can also affect human health. One type of bacteria that is used as an indicator of sewage pollution is *Enterococcus*, which is found in the intestinal tract of warm-blooded animals. *Enterococcus* indicates that other pathogenic organisms may be present. Discharge of untreated wastewater from visiting ships may result in outbreaks of recreational water illnesses or RWIs, since people use the town beach near where small cruise ships and other vessels dock, and local kayaking companies launch from the nearby boat ramp. RWIs may include a wide variety of infections, including skin, eye, ear, and gastrointestinal system.

A monitoring program that includes open communication with the cruise industry has helped to address two questions: Are cruise ships aware of and complying with Bar Harbor's "No Discharge" policy? The second question is: How can we use water quality data to open lines of communication with the cruise industry and others and affect positive change that ensures that Bar Harbor remains a sustainable cruise destination?

Dr. Jane Disney, director of the Community Environmental Health Laboratory at MDI Biological Laboratory, and project manager for the 2015 Cruise Ship Monitoring Program in Bar Harbor, has been engaging citizens in monitoring water quality in Frenchman Bay since 1997 as part of the Maine Shore Stewards program, the Maine Phytoplankton Monitoring Program, and most recently the Maine Healthy Beaches program. In 2004, as director of the non-profit MDI Water Quality Coalition, she was involved in a series of four "Community Conversations on Cruise Ships" in Bar Harbor. Due to citizen concern about the potential for cruise ship impacts on water quality, she designed a water quality monitoring regime to look at water quality at cruise ship anchorages and at the Town Pier in Bar Harbor. Working with citizen volunteers, water quality data were collected in the vicinity of 31 large and small passenger vessels between May and November of 2004. The final report was cited in *From Ship to Shore: Sustainable Stewardship in Cruise Destinations*, published in 2006 by Conservation International. This publication acknowledged that "because of their unique skills and expertise on conservation and community development issues, civil society organizations have an opportunity to work with other stakeholders, including the cruise lines, to develop and implement solutions for addressing their key concerns and increasing the sustainability of cruise tourism."

After a purported wastewater discharge incident by a small passenger vessel at the town pier in 2010, the Community Environmental Health Laboratory (CEHL) at MDI Biological Laboratory received a request from the harbormaster to take water samples to assess the health of the surrounding water. In 2011, CEHL staff followed up on this incident by implementing a second cruise ship monitoring project, this time focused in the vicinity of small passenger vessels at the town pier. We sampled on 8 different occasions and prepared a report for the Town of Bar Harbor with recommendations which included continued communications with visiting cruise ships about harbor policies which include expectations that ships hold all wastewater (Megan May and Jane Disney, 2011).

In 2014, the Community Environmental Health Laboratory monitored in the vicinity of 19 large and small cruise ships; monitoring revealed elevated bacteria levels three times during the season (Disney,

Charabati, Farrell, 2015). Two of the instances were at the Town Pier. On one of these occasions, American Glory had just docked, on the other occasion there was no cruise vessel at the pier. On both occasions, the registered herring carrier from Columbia, ME, *Reliance* was docked; observers noted discharge coming from *Reliance* on the first of these two occasions and reported the event to the harbormaster. Elevated bacteria levels were also found at anchorage Alpha when the large passenger vessel, Summit, was visiting. The visit corresponded with heavy rainfall and runoff in Bar Harbor, which probably accounts for the high bacteria levels.

The 2004, 2011 and 2014 cruise ship monitoring projects helped to open lines of communication between ship captains and the harbormaster, provide clarity on wastewater treatment and management practices on-board visiting ships, and allay concerns of Bar Harbor citizens about the potential impact of cruise ships on marine water quality along the Bar Harbor shorefront. As this current report reveals, the 2015 cruise ship monitoring project accomplishes the same goals.

Our expertise and experience with water quality monitoring in Bar Harbor, as participants in state-level initiatives, as well as local cruise ship monitoring projects, were brought to bear on the 2015 cruise ship monitoring project, the results of which are presented in this report.

## **Methods**

### **What we tested for:**

The water quality monitoring protocol is similar to the one described in the MDI Water Quality Coalition Cruise Ship Water Quality Report (2005) and detailed in the Quality Assurance Project Plan (QAPP) that guide all field and lab testing at the Community Environmental Health Laboratory. Variables assessed in water samples taken from the pier or in cruise ship anchorages include water temperature, *Enterococcus* bacteria, dissolved oxygen (DO), biological oxygen demand (BOD), nutrients (ortho-phosphate, dissolved inorganic nitrogen (DIN) which is nitrate + nitrite + ammonia), chlorine, transparency, turbidity, salinity, and dominant phytoplankton species.

### **Why we monitored for these variables:**

The presence of *Enterococcus* indicates that pathogenic organisms may be present in the water. Since *Enterococcus* is found in the gut of warm-blooded animals; it can be found in both black water (from sewage) and gray water (from sinks and showers) from boats. Discharges from boats can impact more than human health. The nutrients and organic matter in discharges can affect DO levels, which must be above 4-6 ppm for a healthy marine ecosystem. Measuring BOD helps to determine if there is excessive organic matter in the water column. In metabolizing the organic matter, bacteria can quickly multiply and consume dissolved oxygen, leading to high (>2 ppm) BOD results. The nutrients in both black water and gray water can spur phytoplankton blooms, which in turn, can also affect DO levels in the water. Water temperature can also affect DO levels. Concentrations of nutrients and metals can vary in different locations in bays and estuaries. On-going monitoring when ships are in port or when no ships are present helps to establish baseline readings of what is normal or expected in particular marine systems.

## **How samples were collected and analyses were conducted:**

Samples for bacterial analysis were collected using sterile Whirl-Pak sample bags and then tested using the Enterolert® protocol from IDEXX; this method is currently being used in the Maine Healthy Beaches Program. As part of that program, we have data on town beach for comparison with offshore samples. US-EPA recommends *Enterococcus* as the best fecal indicator in marine waters from a public health perspective. It is recommended that *Enterococcus* tests be run as soon as possible, but not later than 6 hours after sampling. CEHL is in close proximity to the sampling sites and we ran the tests well below the 6-hour holding time limit. The Maine Healthy Beaches Program supplied all field equipment and sample bags as well as lab supplies related to running *Enterococcus* tests (dilution jars, multi-well plates for Most Probable Number or MPN determination, pipets, and media) at no cost to the town, as the data generated may help to inform beach management in Bar Harbor in the future.

DO samples were collected in duplicate and fixed using a LaMotte DO test kit. Water samples for BOD determination were collected in duplicate in bottles covered with aluminum foil and then kept in the dark for 5 days. Both DO and 5-day DO levels were determined using the Winkler Titration Method. BOD was calculated by subtracting the 5-day DO levels from the original DO levels.

Water samples were collected for ortho-phosphate and DIN analysis by filtering through a syringe filter containing a Millipore 0.45 um filter into sterile vials. These were transported in a seawater ice-bath to the Community Environmental Health Laboratory, where they were stored in a -20°C freezer. The samples were shipped on dry ice to the University of Maine-Orono to be analyzed with an Autoanalyzer II by Maura Thomas in Dr. David Townsend's Laboratory. Silicate results were reported back to us with the other nutrient values, but are not presented in this report.

Transparency was documented by using an oceanographic Secchi disk to determine descending and ascending transparencies; these values were then averaged. Secchi disks measure meters of clarity. Turbidity samples were analyzed in triplicate using the 2020 e LaMotte turbidity meter; these values were then averaged. Readouts from the turbidimeter provide a relative measure of turbidity in nephelometer turbidity units (NTU). Samples for phytoplankton analysis were collected by filtering 10 liters of seawater through 20 micron netting. Salinity was measured in ppt using a refractometer.

Additional data regarding environmental characteristics were also recorded, including air and water temperature, tide stage, times of high and low tide, wind speed, weather, and observations of all boats and yachts at the pier and moored in the harbor. Temperatures were taken with a digital thermometer. Times of low and high tides were determined using an online Bar Harbor tide chart. Wind speed and direction were measured with a compass and a Beaufort scale. Weather was determined by conditions in the field at the time of sampling. The amount of precipitation in the 48 hours preceding sampling was determined using data from noaa.gov.

## **Results and Discussion**

### **Scope of Monitoring:**

We obtained samples in the vicinity of 16 different ships on nine separate occasions this year, with a control on each sampling day, for a total of 25 samples. Anchorage Alpha and Anchorage Bravo were

each sampled eight times. Control Site Bell Buoy #7 was sampled nine times. Ships at the Town Pier were sampled two times. We also sampled weekly at the Town Pier when no ships were present a total of 18 times. The majority of the samples were collected in the vicinity of large passenger vessels, which anchor offshore.

**Bacteria and Oxygen:**

For the purposes of this monitoring program, fecal bacteria and oxygen were the most important indicators of healthy water, as bacteria relates to public health and oxygen levels relate to overall ecosystem health.

*Enterococcus* is recommended by the US EPA as the best fecal indicator in marine waters from a public health perspective. 104 MPN (Most Probable Number of colonies of bacteria/100 mL) is considered to be the maximum healthy level of *Enterococcus* in marine environments. The highest bacteria concentration during the 2015 cruise monitoring season was 41 MPN on August 17, 2015, when Grand Caribe was docked at the Town Pier. 95% of bacteria samples around cruise ships were below 10 MPN. No samples at any site reached the EPA exceedance level of 104 MPN/100 mL.

Many species, including fish, invertebrates, and plants require oxygen to carry out their life cycles. Atmospheric oxygen dissolves readily in water until the water is saturated. Distribution depends on movement of the water. Photosynthetic species, such as marine plants, algae, and phytoplankton also produce oxygen in the water. Different species at different life stages require varying amounts of oxygen, but in general, dissolved oxygen levels below 3 ppm are stressful to most marine organisms, and levels below 2 or 1 ppm will not support fish. Levels at or above 5 ppm are required for most processes (LaMotte, 2001). Average dissolved oxygen over the 2015 monitoring season was 8.8 ppm. The highest average dissolved oxygen content was 10.0 ppm, and the lowest was 7.6 ppm (Figure 3).

Biological Oxygen Demand (BOD) is the amount of dissolved oxygen that biological organisms consume to carry out life processes over a specific amount of time. There are natural sources of organic materials (swamps, bogs, vegetation, animal waste), and human sources (wastewater). When BOD levels are high, it means microorganisms are consuming much of the available dissolved oxygen, leaving little oxygen left for other organisms (Mitchell and Stapp, 2000). We held BOD samples for five days before fixing

and titrating. Average actual biological oxygen demand (DO-BOD) over the 2015 monitoring season was 1.2 ppm. The highest actual biological oxygen demand was 2.3 ppm, and the lowest was 0.2 ppm (Figure 3). On September 29, 2015, anchorages A and B, and

<b>BOD Level (in ppm)</b>	<b>Water Quality</b>
1 - 2	<b>Very Good</b> There will not be much organic waste present in the water supply.
3 - 5	<b>Fair: Moderately Clean</b>
6 - 9	<b>Poor: Somewhat Polluted</b> Usually indicates organic matter is present and bacteria are decomposing this waste.
100 or greater	<b>Very Poor: Very Polluted</b> Contains organic waste.

**Figure 2. BOD level and associated water quality conditions.**  
<http://www.polyseed.com/misc/BODforwebsite.pdf>

the Control Site all had BOD levels above 2 ppm, indicating there was probably some organic matter in the water. BOD levels above 3 ppm indicate that water may be polluted with organic material (Figure 2).

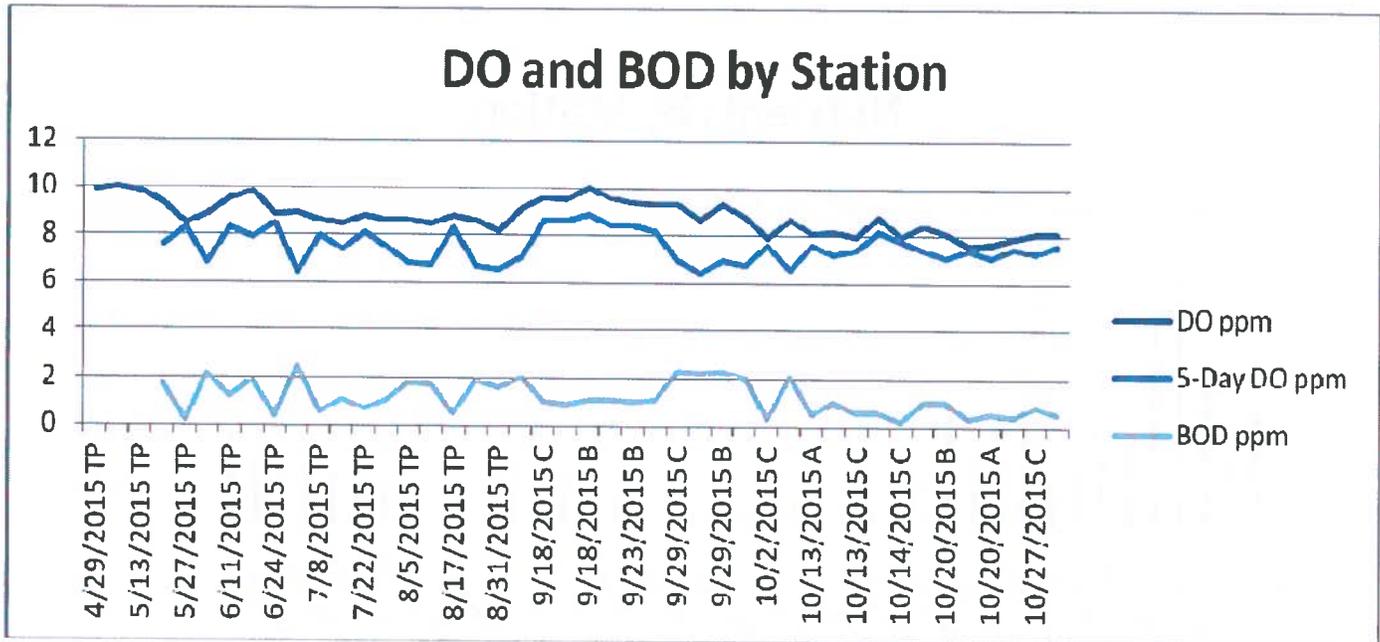


Figure 3. Dissolved oxygen (DO), DO after a five-day hold (5-Day DO), and biological oxygen demand (BOD) over the sampling time period.

### Chlorine:

Chlorine is used to treat wastewater in some ships using Marine Sanitation Devices. Chlorine can be damaging to the environment when discharged, even at low levels. According to the US EPA, the recommended maximum for all fish and aquatic life is 0.01 ppm (2015). Most marine plankton are killed when levels reach 0.1 ppm. During the 2015 monitoring season, average total residual chlorine levels across all sites were below 0.1 ppm.

### Nutrients:

Elevated nutrient levels in the water column may be indicative of pollution events. The breakdown of organic material, which could result from a pollution event, releases nutrients into the water, particularly nitrogen and phosphorus (Mitchell and Stapp, 2000). Excess nutrients can cause algal blooms, leading to a decrease in light and oxygen in the water. We monitored nitrate and nitrite (NO<sub>3</sub>+NO<sub>2</sub>), silicate (Si(OH)<sub>4</sub>), ammonium (NH<sub>4</sub>), and phosphorus (PO<sub>4</sub>). Dissolved Inorganic Nitrogen (DIN) is calculated by adding nitrate, nitrite and ammonium. We detected elevated levels of DIN at the Town Pier in May and June, and at offshore anchorages Alpha and Bravo, and the Control Site, in October (see Figure 4). The DIN increase can be attributed to spikes in ammonium on those days (see Appendix 1). Elevated DIN was not accompanied by elevated phosphate levels.

The 2014 cruise monitoring season produced similar results at offshore anchorages Alpha and Bravo in October. Elevated nutrient levels at offshore anchorages may be characteristic of the water column in autumn. A comparison is not available for nutrients at the Town Pier since we did not carry out weekly

baseline sampling at that station in 2014. Elevated DIN levels at the Town Pier may be attributed to fish waste resulting from vessels being rinsed at the dock.

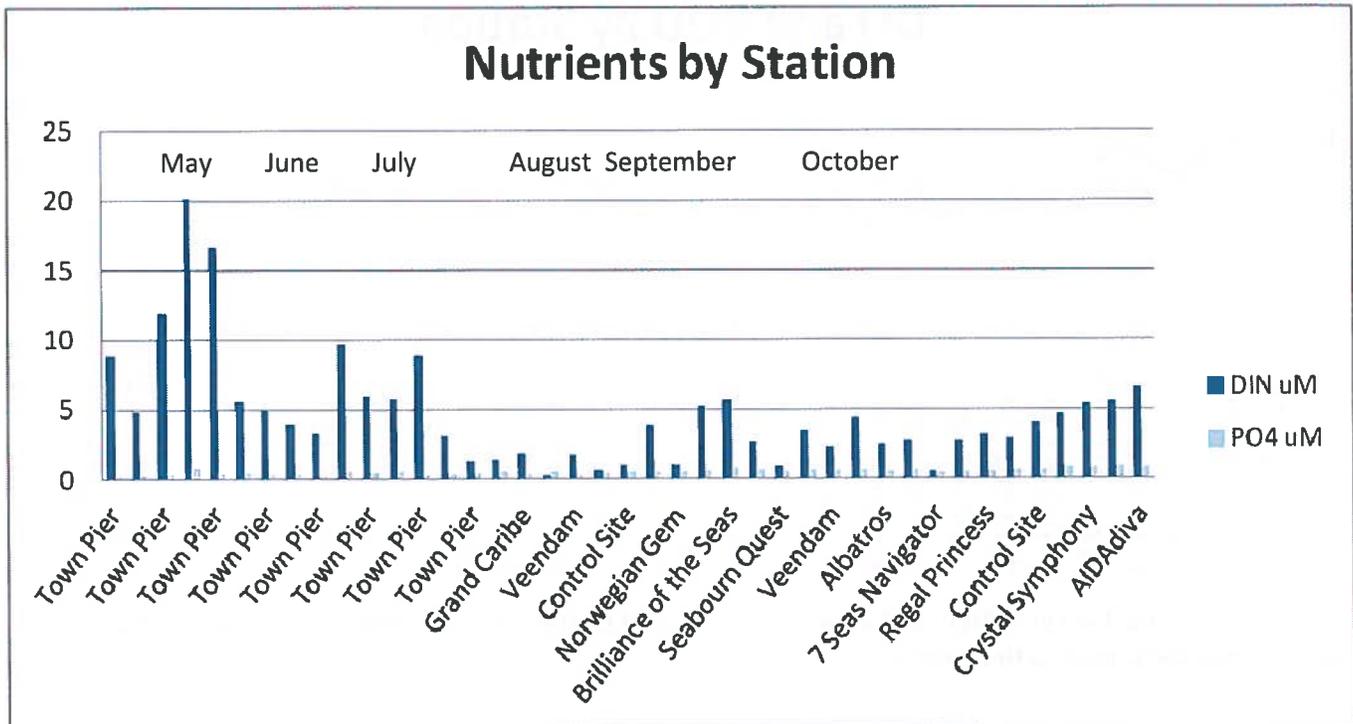


Figure 4. Dissolved Inorganic Nitrogen (DIN) and phosphorus levels over the sampling time period.

**Other Water Quality Variables:**

In addition to collecting information on bacteria and nutrients, we looked at a host of associated water quality variables (see Appendix 2). Sometimes, these variables help explain what is going on if an issue arises, or can exclude certain possibilities.

In addition to rainfall, water temperature, dissolved oxygen, and biological oxygen demand, the transparency and turbidity of the water were assessed at each site on each sampling day. Transparency and turbidity are different measures of water clarity. Both measure the passage of light through particles suspended in the water, but use different techniques (see Methods section). Turbidity increases, and transparency decreases, as a result of suspended solids in the water. These solids may be natural, i.e. clay, silt, and plankton, or human induced, i.e. industrial wastes and sewage. When water clarity decreases, temperatures rise, causing oxygen levels to fall. Photosynthesis decreases because less light penetrates the water. A combination of these things makes it very difficult for some species to survive (Mitchell and Stapp, 2000). Our transparency and turbidity measurements show that Bar Harbor has exceedingly clear water, often with a transparency above three meters, at times as high as six or eight meters. Turbidity measurements also indicated clear water: numbers were usually below 1.0 NTU. When transparency is high, turbidity tends to be low, see Figure 5.

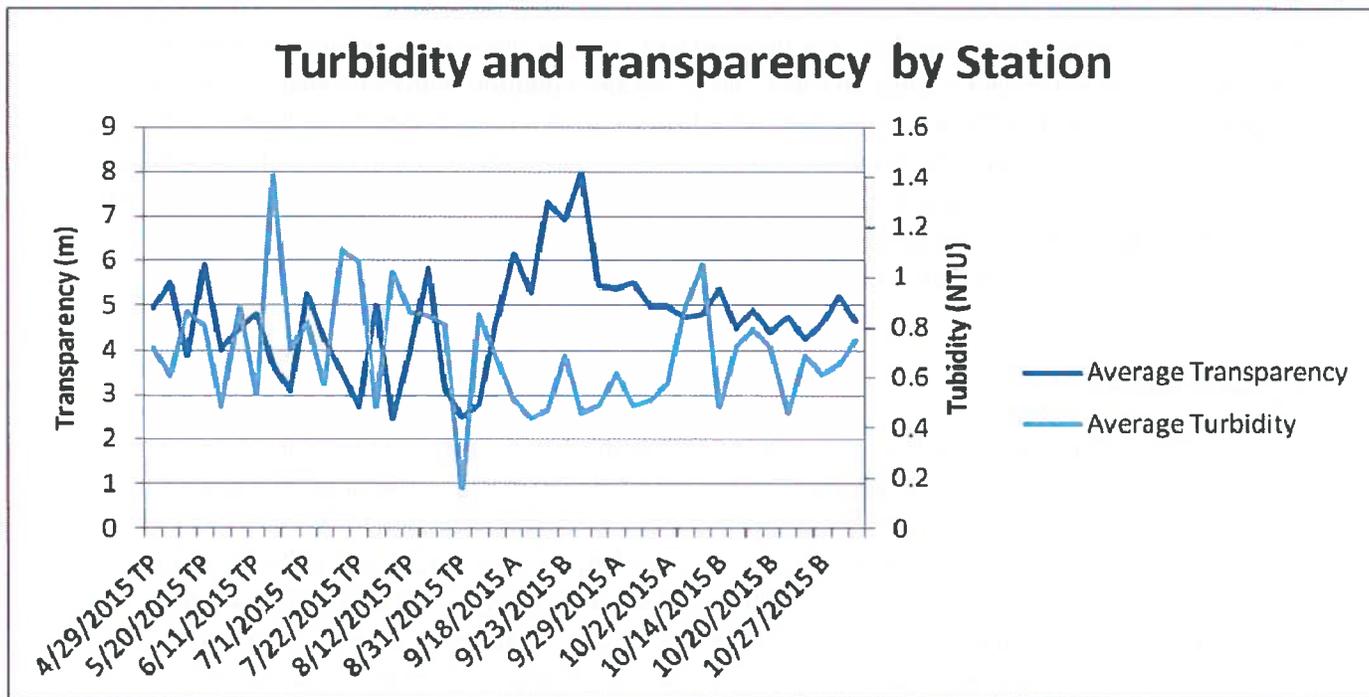


Figure 5. Transparency and turbidity are inversely related at all stations through the 2015 cruise season

**Phytoplankton:**

Phytoplankton populations were also tracked during the cruise season (see Appendix 3). The array of phytoplankton species observed in samples taken in the vicinity of visiting cruise ships mirrored those seen at Department of Marine Resources (DMR) phytoplankton monitoring locations in Frenchman Bay. *Chaetoceros* was most frequently the dominant species in water samples, followed by *Rhizosolenia* and a mix of other species (Figure 6). *Chaetoceros*, *Rhizosolenia*, *Phaeocystis*, and *Scripsiella* are non-toxic phytoplankton common in the Gulf of Maine. We did not see any phytoplankton that were atypical for Gulf of Maine; in other words, there were no apparent non-native (foreign) phytoplankton species that would be indicative of a ballast water exchange.

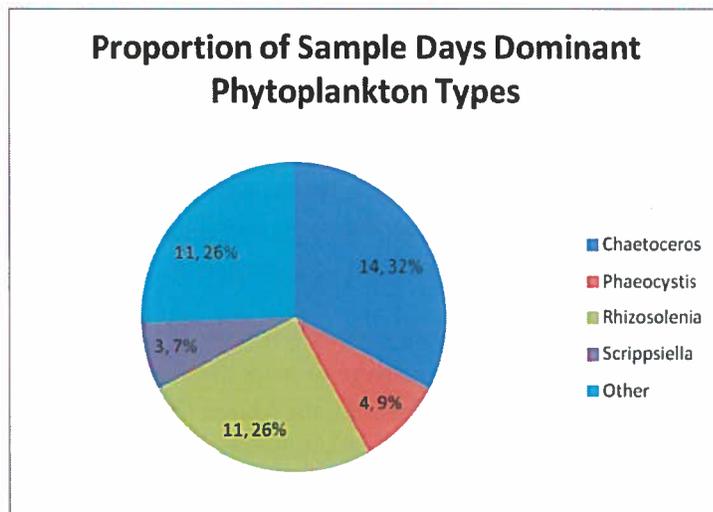


Figure 6. Phytoplankton types in vicinity of visiting cruise ships in Bar Harbor, 2015

## **Conclusions**

Bar Harbor has excellent water quality. For the most part, visiting cruise ships and other vessels are adhering to harbor policy and holding all waste. There are also pollution sources on land which threaten the quality of water in Bar Harbor, particularly after heavy rain. Sources of bacteria on land include malfunctioning septic systems, broken sewer lines, pet waste, and waste from farm animals, as well as wildlife. Runoff from the land can confound the results of harbor monitoring. Nonetheless, water quality monitoring in the harbor provides a baseline for future reference, reveals trends, provides incentive for visiting ships to comply with harbor policy, and allays the concerns of citizens with regard to water quality in the harbor.

## **Recommendations**

1. We recommend that Bar Harbor continue to invest in a healthy future for the harbor by supporting water quality monitoring. In our opinion, the focus of a monitoring program does not need to be on cruise ships in particular. A broader-based monitoring program will help to address behaviors by operators of all types of vessels, may help pinpoint land-based pollution sources, and provide on-going baseline data so that we understand changes that may occur over time. We also recommend that the monitoring program be focused on the most informative water quality variables, including bacteria, DIN, and associated environmental variables such as water temperature, DO, BOD, transparency, turbidity, salinity, and rainfall.
2. We recommend that the Harbor Committee review harbor policies, and discuss ways to ensure that all boat owners who visit Bar Harbor understand and acknowledge their understanding of harbor policies. The current standard operating procedure for Bar Harbor expands on existing federal and state requirements regarding discharges of black water and specifically states that “All cruise ships calling in Bar Harbor, whether in anchorage A or B or laying alongside the Town Pier floats are expected to hold all waste water including gray water while in port.” We recommend that the SOP be modified to include all boats that visit Bar Harbor. We suggest that there should be repercussions for boat owners who do not comply with harbor policy. In the case of intentional discharge of bacteria-laden water into the harbor, those repercussions should be designed to ensure public health.
3. There are numerous resources available to help Bar Harbor with boater education. Adapting one of these resources to meet the needs of Bar Harbor, for example, the “Pump it Don’t Dump It” flyer developed by the Maine Healthy Beaches program for West Penobscot Bay (<http://mainehealthybeaches.org/documents/UseYourHead.pdf>), may be one avenue to addressing boater behavior and helping to ensure good water quality in the future.

## Acknowledgements

This project was made possible with the support of the Maine Healthy Beaches Program, which provided field monitoring equipment and supplies (valued at \$1280) for bacteria analysis, at no cost to the town of Bar Harbor. We appreciate the input of the Maine Healthy Beaches coordinator, Keri Kaczor, on project design and report editing. Maine Conservation Corps helped us with selection and training of AmeriCorps volunteers who were integral to the success of this monitoring project. Bar Harbor Harbormaster, Charlie Phippen, provided transportation to offshore vessels and was helpful with creation of a reasonable monitoring schedule. We appreciate the assistance of a myriad of citizen volunteers, who helped us with sampling, lab tests, and data management.

## References

1. Conservation International. [From Ship to Shore: Sustainable Stewardship in Cruise Destinations](#), 2006.
2. Disney, Jane, Charabati, Jirias, and Farrell, Anna, [Bar Harbor Cruise Ship Monitoring Report 2014](#). MDI Biological Laboratory. 2014.
3. May, Megan and Jane Disney, 2011 Impact of Cruise Ship Discharge on Ambient Water Quality Bar Harbor, ME: 1-12.
4. MDI Water Quality Coalition Cruise Ship Water Quality Report, 2005: 1-19.
5. Mitchell, Mark K., and William B. Stapp. *Field Manual for Water Quality Monitoring: An Environmental Education Program for Schools*. 12th ed. Dubuque, Iowa: Kendall/Hunt Pub., 2000. Print.
- 6.
7. [Oceana](#). ©2014 Cruise Ship Pollution: Overview <<http://oceana.org/en/our-work/stop-ocean-pollution/cruise-ship-pollution/overview>>
8. [Oceana](#). ©2014 Protect Our Oceans: Stop Cruise Ship Pollution <[http://oceana.org/sites/default/files/o/uploads/cruise-pollution\\_summarysheet.pdf](http://oceana.org/sites/default/files/o/uploads/cruise-pollution_summarysheet.pdf)>
9. Stancioff, Esperanza, Keri Lindberg, and Sarah Mosley, 2007 Maine's Healthy (coastal) Beaches Program: Community Resource Guide. University of Maine Cooperative Extension and Sea Grant. 2007.
10. Town of Bar Harbor Cruise Tourism Destination Management Plan, 2007
11. US EPA. ©2015 National Recommended Water Quality Criteria <<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#altable>>
12. [WWF](#). ©2015 Marine Problems: <[http://wwf.panda.org/about\\_our\\_earth/blue\\_planet/problems/](http://wwf.panda.org/about_our_earth/blue_planet/problems/)>



Item  
V E.

## Cruise Ship Committee

### 2015 Season Town Council Update

1. Budget recommended
2. Canada / new England Cruise Symposium
3. Season overview
  - a. Lost ship days
  - b. Inaugural visits
  - c. Overall numbers
4. Fee structure
5. Tender issues?
6. Environmental monitoring
7. Cruise Funds use
  - a. Ferry Terminal study
  - b. Comfort Station Services
  - c. Sidewalk reconstruction
  - d. Harborview Park (FY 18) \$94,568
8. Board Openings
9. ANP transportation Plan
10. Continue actively participating in industry relations
11. Ferry Terminal
  - a. Next study
  - b. Passenger transport
  - c. Possible timeline for use
  - d. Rt 3 construction
12. Parking Garage
  - a. Better bus traffic on West Street
  - b. Possible benefits / collaboration with passengers from Ferry Terminal
13. Additional Items?