



# Caring for Your Lighthouse Buildings

Lighthouse Environmental Programs of Island County

Lighthouses are a significant contribution of our Washington heritage. These majestic navigation icons dot the western coast and inland shipping channels. Most were constructed in the late 1800's and nearly all of the original light structures remain.

But these lighthouses and their support structures require continual care in order to retain their historic integrity into the future. They may not function as they did when first constructed but it is important for us and it is our obligation as stewards to pass these historic treasures on to future generations in the best condition possible.

The purpose of this booklet is to suggest some basic ways to help preserve these structures and their unique architecture. No doubt, you have probably been engaged in some of these actions by involvement with the Lighthouse Environmental Program. But it could be that for many reasons your group may have not yet been able to initiate some of these programs.

If some of the suggestions seem to make sense at your lighthouse site give them a thought..... or give them a try. There could be someone in your group or others you know who could help.

The important thing is that we all want the lighthouse buildings to be around another hundred years ..... and more.... and retaining their historic integrity and character.



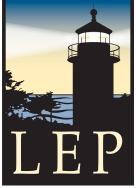
#### **Contents**

Suggestions for preserving your lighthouse buildings

- 3 Photo Documentation
- 4 Historical Data
- 5 Predictive Maintenance Program
- 6 Inspection Process
- 8 Problem Areas
- 9 Preservation Guidelines
- 10 Completion Report
- 11 Best Practices in Preservation
- 14 Emergency Preparedness Plan
- 15 Other / Reference
- 16 Lighthouses of Washington



Is a lighthouse license plate on your car?



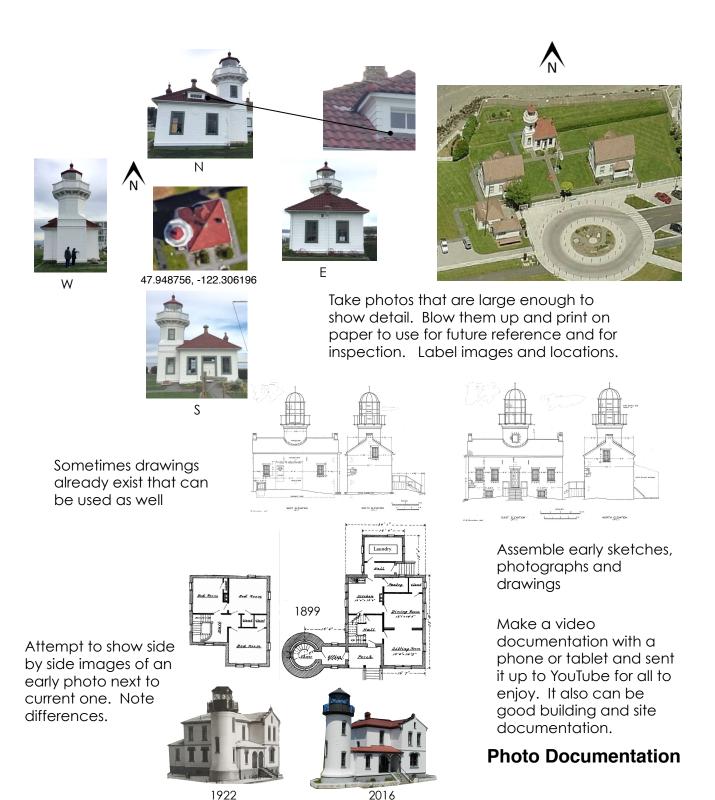
Prepared by Harrison Goodall 2017

Courtesy

Lighthouse Environmental Programs
of Island County

http://washingtonlighthouses.org

Making a visual record of your buildings and site is one of the easiest and most enjoyable of preservation tasks, especially for volunteers. A simple, comprehensive method is to photograph the elevations, details and interiors to create baseline documentation of what the structures look like. Yes, it would have been ideal to have these photos from the time of construction but that isn't possible. Since our goal in preservation is to keep the buildings looking like they were originally, photographs become an important reference for planning future projects and for maintenance. Remember that the cultural landscape and site objects are likely to be as significant as the buildings. Include photos of the site from different directions.



Look at the historical information that you already have about the lighthouse. Does the documentation provide future lighthouse stewards with details about past written, visual and oral history relating to the site, buildings, people and events? Much of this site specific and factual information will be extremely valuable in the future for planning preservation efforts, refining historic significance, preparing interpretation, and general management of the site. It is invaluable for planning projects.

Historical data and objects should be stored in a secure environmentally - controlled space and be easy to access and use.



Treat your lighthouse and support buildings as a national treasure...because they are.

Some examples include:

- Documents about significance, designation nominations
- Historical data when built, installed, modified, by whom
- Identification of historic character and defining features
- Description and explanation of historic and physical integrity
- Past and present management documents and goals
- Chronology of keepers and people and their influence on the structures







- Dates and background of when modifications occurred and why
- Inventory information that provides detailed description of each item, feature and system
- Finish and stucco analysis and color; include paint samples
- Identification of which features are original and historic or not historic
- Architectural description of building construction or feature composition
- Chronology changes in utilities, electric and systems with descriptions and locations
- Description and operation of the light and its history
- Records of projects or major work on any of the buildings
- Records of all routine, corrective, preventive maintenance
- Early photos, drawings, contracts, images, newspapers
- Books, publications, newspapers with reference to the site
- Papers, diaries, letters, studies, contracts,



Historical data helps future stewards and conservators preserve historic integrity and character



#### Maintenance IS Preservation

Unfortunately as buildings age they degrade. When preserving historic structures the most important goal is anticipate and predict oncoming deterioration and attempt to prevent or retard these conditions before they become fabric degrading or lead to costly repairs. Finding and addressing the cause of problems is often more important than taking immediate remedial action. Systematic predictive and preventive care is proactive and reduces corrective maintenance.

Caring for historic buildings is much like dental hygiene. In addition to daily attention we periodically or annually have our teeth inspected for new problems and have a thorough cleaning. At the end of the process the dentist keeps a running history of condition including taking X-rays.

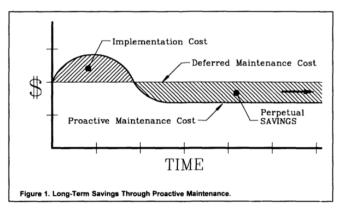
For historic buildings the basic process is similar:

annual inspection (monitoring)

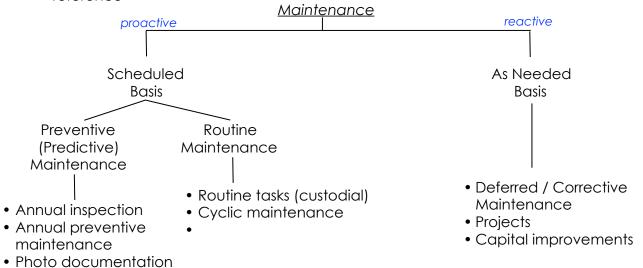
Recording all actions

- specific predictive or preventive tasks performed to retard degradation from occurring
- documenting conditions or problems with photographs and keeping a running history of all actions performed on the structure for future reference

Maintenance of a historic lighthouse is particularly difficult with limited budgets and volunteers to carry out the work. You obviously have a maintenance program now but consider initiating a simple process based around predictive and preventive tasks.



Predictive Maintenance not only reduces loss of historic fabric but is COST EFFECTIVE.



Prevention of building failures is ultimately less expensive than making repairs or replacing historic fabric.

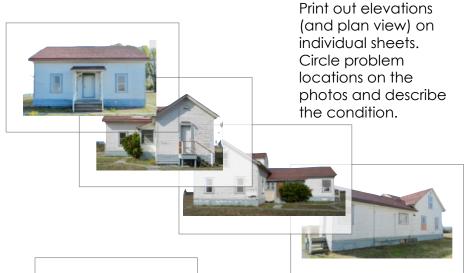
#### Features to inspect:

- □ Roof Covering / Surface
- □ Chimney / Roof
- □ Penetrations / Flashing
- □ Gutters / Downspouts
- □Cornice / Eaves
- □Ext. Wall Surface /
- □Structure
- □ Ext. Window
- □Ext. Doors
- □Columns / Posts
- □Porch / Deck
- □ Ext. Steps / Ramp
- □ Foundation / Crawl Space
- □ Site Drainage
- □Site Grade
- □Vegetation
- □ Under Roof / Attic Space
- □Structure
- □ Int. Wall / Ceilings
- □ Int. Finish
- □ Int. Flooring
- □ Int. Stairs
- □ Int. Windows / Doors
- □Kitchen Features
- □ Bathroom Features
- □ Electrical System
- □ Electrical Lighting
- □HVAC
- □ Plumbing System
- □Water Heater
- □ Fire Protection System
- □ Fire Extinguishers
- □Smoke / Fire Detectors
- □ Carbon Monoxide Det.
- □Walks
- □Fences
- □ Site Objects
- □Others
- □ Accessibility

Just like with your teeth, your body, the airplane you fly in and most physical objects it is important, sometimes critical, that you know about its condition. Knowing the condition of your lighthouse or any of the buildings is no different. It helps in identifying what portions or features are degrading. This process is proactive and is a major component of a predictive maintenance program. It is also an important preventive measure.

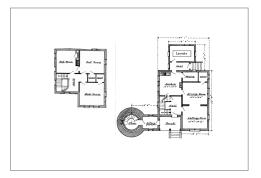
- identify degraded features in their early stages before conditions destroy or degrade historic fabric or become costly
- careful investigation of your lighthouse forces a close evaluation of every feature of the building
- building inspection helps in identifying and prioritizing deficiencies that require more immediate attention and often triggers action
- continuous and annual inspections can be used to determine the effectiveness of your maintenance program

There are many ways to inspect and monitor your buildings. Here are a few suggestions.



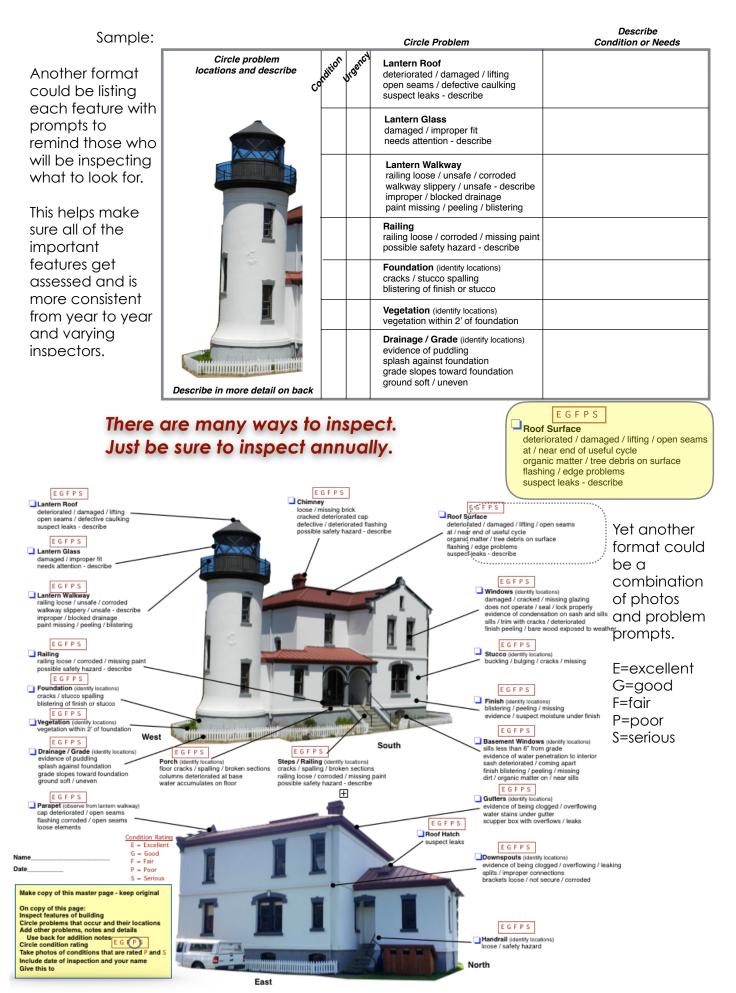


Save and accumulate inspection information to monitor change.



Annual inspections could be the most important preservation action for your buildings!

continued on next page



Have any problem areas at your site? ..... and not know what to do or don't have funding at this time?

**Problem Areas** 

Identify those preservation issues and use as way of communicating to specialists, donors, Boards, and stewards that follow. It is a good way to monitor conditions over a period of time to study progression.



#### **Preservation Guidelines**

Adapted from Secretary of the Interior Standards for Rehabilitation https://www.nps.gov/tps/standards/rehabilitation/rehab/stand.htm

- 1. Since the lighthouse and the surrounding buildings have a new use make minimal changes to the unique and distinctive materials, features, spaces, and spatial relationships. Refer to early photographs and documents for reference.
- 2. Every old building is unique, with its own identity and its own distinctive character. Character refers to all those visual aspects and physical features that comprise the appearance of every historic building. Character-defining elements include the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment. Avoid change to the appearance of all character-defining elements.
- 3. Lighthouses and support buildings are recognized as being a physical record of their early period of time, place, and use. Avoid making changes that create a false sense of history or by adding conjectural features or elements from other historic properties.
- 4. But do retain and preserve changes to buildings and the property that have acquired historic significance in their own right, often 50 years or more.
- 5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
- 6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
  Any intervention or maintenance should
- 7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. DO NOT sandblast or power wash any historic fabric. Cleansers or other chemicals, should be used with caution. Test first on small areas and evaluate the results over a delayed period of time. Do not apply treatments that could damage historic materials.
- 8. Actions that involve disturbance of the grade, such as drainage or setting posts, require review by an archeologist in advance. Should any archeological resources disturbed or be found protect them by keeping them in place and contacting an archeologist.
- When making exterior alterations or new additions do not destroy the historic materials that characterize the building. Differentiate the old from the new in size, scale or massing but be compatible to the original design to protect the building's historic integrity.
- 10. If new additions or modifications are made attempt to do so in such a way that if removed in the future the essential form and integrity of the building would not be lost.

The intent of a completion report is provide preservationists and stewards 20, 100, 400 years from now with information of the intervention made to the historic building and fabric and how it complied with the Secretary of the Interior Standards. It is not only a final documentation or summary of a project, major maintenance or rehabilitation but an understanding and description of the preservation treatment that was performed including why it was needed, its historical context and how it was accomplished.

As expected, this report will be heavily illustrated with drawings and photographs. Additionally, a brief video containing the same information can be a good way to communicate and document the project.



Laying north floor

#### Contents of a completion report often include:

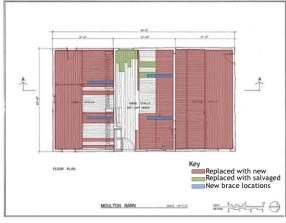
- Identification data when, where, who, etc.
- Overview summary
- Causes for the need for the work
- Purpose for treatment
- Description of the work and chronology
- Rationale for the approach taken
- Materials used and their sources
- Time and costs
- People, contracts, responsibilities
- Future care maintenance program updated
- Evaluation / reaction / summary



Plates temporarily held in place with steel cables with turnbuckles

#### Photos should include:

- Overall conditions at beginning
- People carrying out phases of treatment
- Progression of project
- Side by side photos of before and afterward of primary components
- Labels, locations, detail



Identification of replaced fabric

Document!
Document!
Document!
Future stewards will appreciate it

Are you aware of the Historic Lighthouse Preservation Handbook? It it terrific! So terrific that it should be distributed to all lighthouse managers and used by those involved in planning preservation projects and all who are maintaining any of the buildings at your site.... even volunteers. If any contract work is to be done, such as painting or window repair, include in your agreement contract that the treatment to the building(s) must follow the guidelines and information.

The first few sections focus on overall preservation guidelines, the major portion of the handbook relate to lighthouse construction.

Most of the information in this booklet is similar to the content in Part III (Section 3) of the handbook. Indeed, content in the next few pages are directly from Part IV (Section 4) of the handbook for emphasis.

Google on Historic Lighthouse Preservation Handbook or go to this site.

https://uslhs.org/sites/default/files/attached-files/ HistoricLighthousePreservationHandbook.pdf

#### Identify, Retain, and Preserve Historic Materials and **Character- Defining Features**

The guidance for the preservation treatment begins with recommendations to identify the form and detailing of those architectural materials and features that are important in defining the lighthouse's historic character and which must be retained in order to preserve that character. Therefore, guidance on identifying, retaining, and preserving character-defining features is always given first.

Part IV, Page 2, Historic Lighthouse Preservation Handbook







- Sequence of spaces
- Interior features
- Surface materials and **Finishes**
- Other predominate features Exposed structure
- Setting

#### Close range

· Materials

Overall from a Distance

Shape

Trim

Roof

Openings

Projections

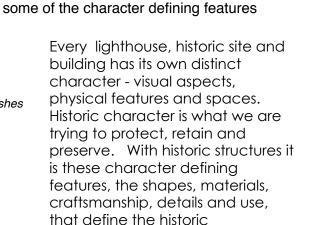
- · Craftsmanship
- · Craft details

- Important spaces

#### Setting

- Vegetation
- · Landscape objects & aspects
- · Orientation of buildings to site

Identify and photograph the character defining features of your buildings. Assemble these photos together to explain the importance of preserving these features to all who maintain and care for the structure.



significance and qualities that are to be protected and preserved. Likewise, the same is true for the landscape, preserving the visual character of the site.

https://www.nps.gov/tps/how-to-preserve/ briefs/17-architectural-character.htm

#### **Best Practices in Preservation**

# Stabilize and Protect Deteriorated Historic Materials and Features as a Preliminary Measure

Deteriorated portions of a historic lighthouse may need preliminary stabilization and protection measures to safeguard those features until additional work can be undertaken. Stabilization involves re-establishina the stability of an unsafe, damaged, or deteriorating structure while maintaining its existing character. Stabilizing may include emergency short- or long-term measures; longterm structural reinforcement. weatherization, or ventilation; or correcting unsafe conditions. Temporary stabilization should always be carried out in such a manner that it detracts as little as possible from the historic lighthouses appearance. Although it may not be necessary in every preservation project, stabilization is nonetheless an integral part of the preservation treatment; it is equally applicable, if circumstances warrant, for the other treatments.



### Maintain Historic Materials and Features

After identifying those materials and features that are important and must be retained in the process of preservation work, their protection and maintenance is addressed. Protection generally involves the least degree of intervention and is preparatory to other work. For example, protection includes the maintenance of historic materials through treatments such as rust removal, caulking, limited paint removal, and re-application of protective coatings; the cyclic cleaning of roof gutters and internal ventilation systems; or installation of fencing, alarm systems, and other temporary protective measures. Although a historic lighthouse will usually require more extensive work, an overall evaluation of its physical condition should always begin at this level.

https://uslhs.org/sites/default/files/attached-files/ HistoricLighthousePreservationHandbook.pdf

## Repair (Stabilize, Consolidate, and Conserve) Historic Materials and Features

When the physical condition of the character-

defining materials and features requires additional work, repair by stabilizing, consolidating, and conserving is recommended. Repair generally focuses upon the ongoing maintenance of historic materials and features rather than extensive replacement and new construction. Preservation strives to retain existing materials and features while employing as little new material as possible. Consequently, guidance for repairing a historic material such as masonry again begins with the least degree of intervention possible, such as strengthening fragile materials through consolidation, when appropriate, and repointing with mortar of appropriate strength. Repairing masonry as well as wood and architectural metal features may also include patching, splicing, or otherwise reinforcing them using recognized preservation methods. Similarly, within the preservation treatment, portions of a historic structural system could be reinforced using contemporary materials such as steel rods or wood bracing. All work should be physically and visually compatible, identifiable upon close inspection, and documented for future research.

Part IV, Page 3 & 7, Historic Lighthouse Preservation Handbook

#### Limited Replacement In Kind of Extensively Deteriorated Portions of Historic Features

If repair by stabilization, consolidation, and conservation proves inadequate, the next level of intervention involves the limited replacement in kind of extensively deteriorated or missing parts of features when there are surviving prototypes (for example, gallery brackets, steps, window casings, hardware, railings, or portions of roofs). The replacement material needs to match the old both physically and visually, i.e., oak with oak, cast iron with cast iron, etc.

Thus, with the exception of hidden structural reinforcements and new mechanical system components, the wholesale use of substitute materials is generally not appropriate in the preservation treatment. Although using the same kind of material is always the preferred option, substitute materials may be acceptable in certain instances, i.e., repairing a damaged piece of historic lantern glazing, if the form and design, as well as the material itself, convey the visual appearance of the remaining parts of the feature and finish. Again, it is important that all new material be identified and properly researched for future needs. If prominent features such as interior staircase, exterior cornice, or roof ventilator are missing, then a rehabilitation or restoration treatment may be more appropriate.

These treatments are critical components of the process and should not be overlooked. Treatment measures should not result in permanent damage, and so each should be weighed in terms of its reversibility and its overall benefit. New exterior additions or reconstruction are not within the scope of any of these treatments.

https://uslhs.org/sites/default/files/attached-files/ HistoricLighthousePreservationHandbook.pdf









**Best Practices in Preservation** 

Emergencies or natural disasters can happen anywhere and at any time.....a severe wind, an earthquake, a fire, a bursted water pipe, loss of electricity for a long duration of time, a window blow out, generator or structural failures. It could even be when a visitor has a heart attack, someone falls down the tower steps or an older man having a stroke. Few ever think that such things could happen. But they do.

It is not possible to anticipate every eventuality but it is possible to have a general plan of action just in case. And it is relatively easy. There are many web sites giving guidance and instructions for creating a plan. Google on "disaster preparedness" or "historic structure emergency preparedness". Some sites provide a general template of actions that can be customized to your particular buildings and situations.

But even if you do not to create an emergency or disaster plan at least prepare a communication link to selected others for guidance or assistance.

Begin by looking at this website from the US Lighthouse Society.

http://uslhs.org/disaster-planning-lighthouses



4 stages of preparedness

- 1. Prevention
- 2. Preparedness
- 3. Response
- 4. Recovery



http://www.museum-security.org/disasterbib.html

http://www.nj.gov/dep/hpo/4sustain/preparehsr 2015 11 02.pdf page 13

https://www.getty.edu/conservation/publications resources/pdf publications/pdf/emergency\_plan.pdf

https://www.aam-us.org/docs/default-source/continuum/developing-a-disaster-plan-final.pdf?sfvrsn=4

#### **Emergency Preparedness Plan**

#### Some other preservation issues or actions to consider

There could be some other issues you may want or need to tackle.

Lantern Care - appropriate procedures for cleaning & caring for the lantern and lantern room Understanding Interior Environments - monitoring temperature, humidity, moisture Cleaning Historic Fabric - how to clean window sills, stucco walls, interior floors Controlling Vegetation Near Buildings - how vegetation holds moisture near foundation Consider a Condition Assessment - evaluation of buildings by a professional conservator Insect and Varmint Control - are ants, powder post beetle, rats, raccoons eating your buildings Paint and Finish - documenting what finishes work & touch-up areas rather than wait for a contract Paint and Finish - paint removal and dealing with lead paint Surface Drainage - does water drain toward buildings and puddle Gutter & Downspout - practical ways to manage roof runoff, especially during heavy rainfall Grade - erosion or plant buildup causing moisture Preparing a Lighthouse Preservation Guide or Handbook - an owner's manual concept

#### References / Resource Information

### The most important reference: Historic Lighthouse Preservation Handbook

https://uslhs.org/sites/default/files/attached-files/HistoricLighthousePreservationHandbook.pdf

Consider downloading this .pdf handbook and customizing it to your specific lighthouse.

There is an abundance of information on the internet relating to historic preservation and lighthouses. But check out some of the Preservation Briefs when planning projects or managing your maintenance program.

National Park Service. Preservation Briefs

http://www.nps.gov/history/hps/tps/briefs/presbhom.htm

- 03: Conserving Energy in Historic Buildings
- 04: Roofing for Historic Buildings
- 06: Dangers of Abrasive Cleaning to Historic Buildings
- 09: The Repair of Historic Wooden Windows
- 10: Exterior Paint Problems on Historic Woodwork
- 16: The Use of Substitute Materials on Historic Building Exteriors
- 17: Architectural Character Identifying the Visual Aspects of Historic
- 18: Rehabilitating Interiors in Historic Buildings Identifying Character-Defining Elements
- 31: Mothballing Historic Buildings
- 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes
- 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings
- 45: Preserving Historic Wooden Porches
- 47: Maintaining the Exterior of Small and Medium Size Historic Buildings



Cape Flattery





New Dungeness 🛠



Patos 🛠



Destruction Island



Cattle Point



Lime Kiln 🗱



Marrowstone Point



Greys Harbor \*



Gig Harbor



Burrows \*



Point Robinson 🔻



Turn Point 🛠



North Head



Cape Disappointment



Swiftsure 🗱



Browns Point 🗱



Point Wilson



**Bush Point** 



Alki Point



Dofflemyer Point



Point No Point 🔻



Admiralty Head 🛠



\* = Open to the public and partially funded by Washington Lighthouse License Plate sales





Mukilteo 🔆