

“ Because historic preservation involves the conservation of energy and natural resources, it is really the greenest of the building arts.”

Richard Moe, past Pres. NTHP

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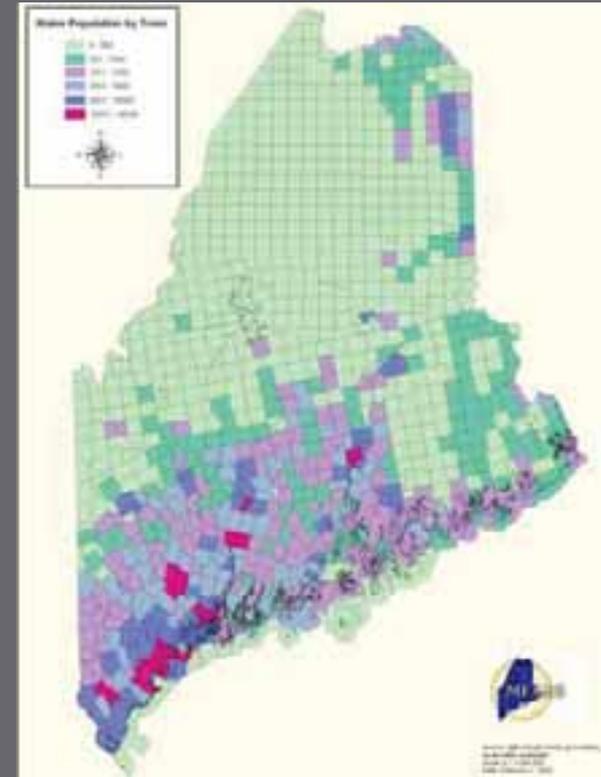


- **Maine's Uniform Code**
- **IEBC 2009 and Preservation**
- **Strategies for Rehabilitation**
- **Green Downtowns Initiative**
- **Recent Rehab Successes**

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MAINE'S UNIFORM CODE

- Prior to MUBEC, a “patchwork quilt” of codes existed, leading to unnecessary confusion, and extra time & costs for permitting.
- Existing and historic buildings required a more flexible approach to compliance, than that offered by the IBC.
- *“Need to make historic preservation a policy priority by way of model codes, to facilitate adaptive reuse and alternate compliance methods for historic buildings”.*



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FEATURES OF THE MUBEC

Adopted Codes & Standards:

- International Building Code (IBC) 2009
- International Residential Code (IRC) 2009
- **International Existing Building Code (IEBC) 2009**
- International Energy Conservation Code (IECC) 2009
- ASHRAE Standards; 62.1-2007, 62.2-2007 and 90.1-2007
- Maine Model Radon Standard ASTM 1465-06

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IEBC 2009 FEATURES

- Offers Alternate Compliance Methods
 - Prescriptive Compliance Method
 - Work Area Compliance Method
 - Performance Compliance Method

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IEBC 2009 FEATURES

Chapter 3 Prescriptive Compliance Method

(sim. to IBC Chapter 34)

Chapter 4 Work Area Compliance Method

Chapters 5-12:

Repairs

Alteration Level 1

Alteration Level 2

Alteration Level 3

Change of Occupancy

Additions

Historic Buildings

Relocated Buildings

Chapter 13 Performance Compliance Method

(Bldg. evaluations for: FS, ME & GS)

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IEBC 2009 FEATURES

2009 IECC (Energy Conservation Code) Features

- Additions, alterations, renovations or repairs to an existing building, shall conform to requirements of this code, w/o requiring the unaltered portion(s) to comply.

Historic buildings are exempt from IECC requirements

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STRATEGIES FOR REHABILITATION

- **HP Rehab. Tax Credits**
- **Main Street Program**
- **Sustainability**

STRATEGIES FOR REHABILITATION

• HP Rehab. Tax Credits

Maine communities with current applications:

- Auburn
- Bangor (2)
- Berwick
- Biddeford (3)
- Brunswick
- Eastport
- Farmington
- Gardiner
- Hallowell
- Kennebunk
- Lewiston (2)
- Lisbon Falls
- North Berwick
- Orono
- Portland (14)
- Rockport (2)
- Saco (2)
- Sanford
- Scarborough
- Skowhegan
- Thomaston (2)
- Waterville
- Westbrook

From the 2010 Historic Preservation Rehabilitation Tax Credit Annual Report

STRATEGIES FOR REHABILITATION

• Main Street Program



NTHP program encouraging rehabilitation in Maine's historic downtowns.
(Administered through the Maine Downtown Center.)

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STRATEGIES FOR REHABILITATION

- **Sustainability**

- “The greenest building is the one already built!”
- 43% of U.S. carbon emissions are from the construction & operation of buildings.
- Carbon released const. a 50k sf bldg. is equal to driving a car 2.8 million miles!
- “Embodied” energy represents an investment in existing buildings.



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STRATEGIES FOR REHABILITATION

• Sustainability

- Preservation reduces landfill waste; (45.1 million tons in '94).
- Historic downtowns & neighborhoods are walkable.
- Reduces sprawl, and increased infrastructure costs (SmartGrowth).
- Pre-1920s buildings are more energy efficient than most buildings from the 1920-2000 period.



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STRATEGIES FOR REHABILITATION

• Improving Energy Efficiencies in Historic Buildings

1. Identify & evaluate the historic features of the building.
2. Conduct a building performance evaluation.
3. Retain or restore historic features designed to save energy & increase comfort.
4. Determine the most cost effective energy-saving strategies.
5. Develop a long-term energy efficiency plan.
6. Employ durable and repairable materials.
7. Make changes that are reversible and can be monitored.
8. Control moisture, particularly in walls and basements, and for unhealthy air quality.



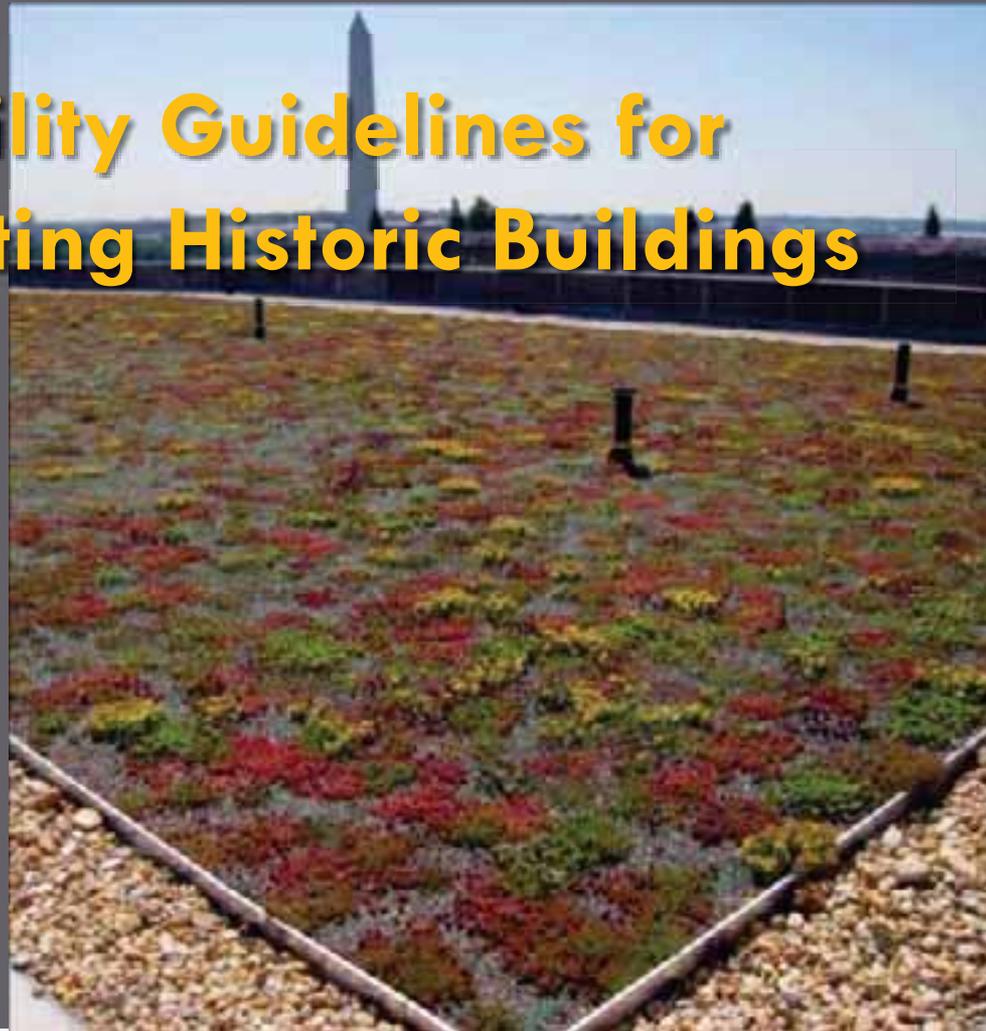
**Guidelines for
Improving Energy Efficiency
in Historic Buildings**



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STRATEGIES FOR REHABILITATION

- **Sustainability Guidelines for Rehabilitating Historic Buildings**



THE SECRETARY
OF THE INTERIOR'S
STANDARDS FOR
REHABILITATION &

ILLUSTRATED
GUIDELINES ON
SUSTAINABILITY
FOR
REHABILITATING
HISTORIC
BUILDINGS



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GREEN DOWNTOWNS INITIATIVE

The 8 Principles of GREEN DOWNTOWNS



REDUCE/REUSE/RECYCLE

Fully utilizing buildings enhances downtown's character



HEALTHY COMMUNITIES

Active options, central gathering places, local foods



GREEN CANOPY

Street trees and plantings make downtown more attractive and livable



GREEN ENERGY

Alternatives such as passive/active solar, heat pumps, attic fans, and wind



URBAN LIVING

A mix of uses makes it possible to work, play, and learn without leaving downtown



STORMWATER PLANNING

Sustainable stormwater practices protect the downtown and water quality



TRANSIT

Public alternatives make downtown livable by connecting everyone to everything

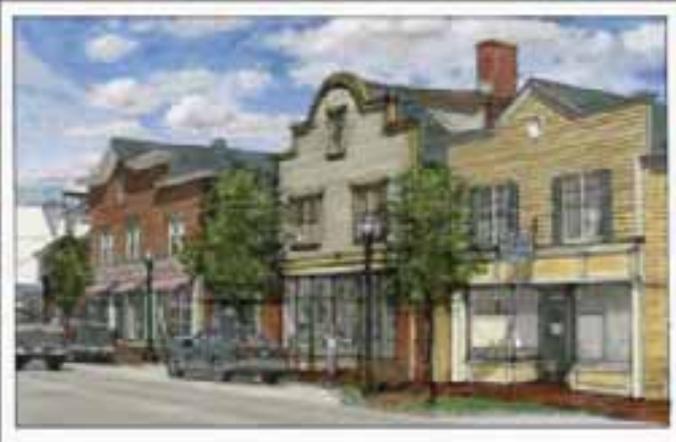
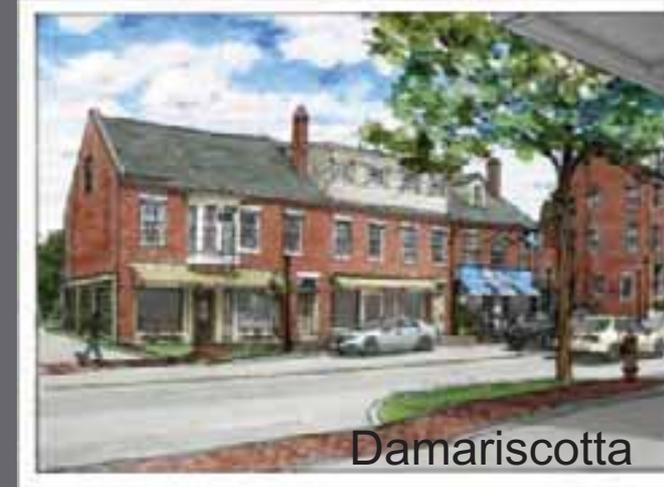
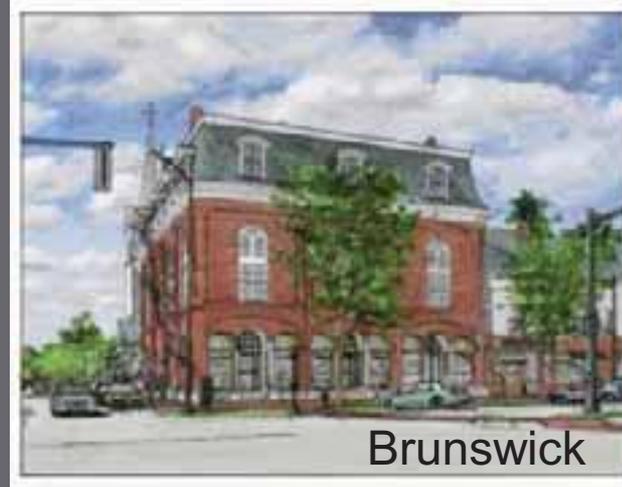


ACTIVE TRANSPORTATION

Walking trails, bike paths, and shared autos

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GREEN DOWNTOWNS INITIATIVE



Green Design/Good Design

GREEN DOWNTOWNS INITIATIVE

INTERSECTION IMPROVEMENTS:

Realign crosswalks to shorten crossing distances and construct with durable surfaces, such as pavers that complement the downtown aesthetic. Bulbouts at crossings create display space and seating areas, while reducing crossing distances.

SIGNAGE IMPROVEMENTS:

Create a plaza at the entrance to the new waterfront park on Main Street with interpretive signage, a downtown business directory, and places to sit and congregate.

STORMWATER "PARK":

Replace asphalt and gravel with a stormwater "park" that receives and cleans stormwater runoff from building roofs and parking lots, with a path to the Chamber of Commerce.



FARMERS MARKET:

New, consolidated waterfront parking area can double as farmer's market and provide flexible plaza space for special events.

REGIONAL BUS STOP:

Integrate a stop for regional bus service within the downtown to make public transit more visible and accessible.

INCREASED PLANTINGS:

In parking lots and alleys reduce ambient air temperatures in summer, mitigate glare, and make downtown more attractive.

PLAZAS AND POCKET PARKS:

Repurposing underutilized and "left over" spaces makes the downtown a more viable and attractive place to live, work and play.

PEDESTRIAN WAYS:

Convert narrow alleys to pedestrian ways to improve pedestrian access to downtown parking areas.

GREEN ROOFS:

Insulate buildings, detain stormwater, reduce ambient air temperatures in summer, and create opportunities for urban agriculture, where existing buildings can support them.



The Masonic Block today



Historical view of the Masonic Block



Aerial view of downtown Dover-Foxcroft

THE MASONIC BLOCK

DOWNTOWN DOVER-FOXCROFT



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GREEN DOWNTOWNS INITIATIVE

8 Steps to GREENER Buildings:

- Celebrate the fact that you are rehabilitating a historic building; the greenest building is an existing building!
- Take advantage of inherent energy conservation features of historic commercial buildings such as shared walls, masonry construction, high ceilings, and windows.
- Restore historic windows rather than replace them. Use storm windows on upper story units.
- Insulate roof and foundation; isolate unheated spaces with insulation.
- Weatherstrip doors, caulk door frames, and construct an interior vestibule if feasible.
- Take advantage of advances in heating and cooling technology to improve energy efficiency and comfort.
- Install awnings at storefront windows to keep sun out in summer and let sun in in winter.
- Install a green roof to save energy, minimize storm water runoff, and make downtown cooler in summer.

UTILITIES: 
Bury electrical wires to eliminate visual clutter and increase sidewalk space.

BUILDING FABRIC: 
Restore windows to third story. Restore quoins, rusticated siding, and original window details. Restore original storefront, including roof and recessed doors. Renovating existing buildings conserves construction materials and contributes to the long-term integrity of the historic downtown.

FULL OCCUPANCY: 
Encourage residential or other uses in upper stories of downtown buildings.

LIGHTING: 
Phase in new, energy-efficient LED lamps that reduce energy consumption and support the downtown's historic character.



WINDOWS: 
Restore windows wherever possible. Reglaze only when it is not possible to reuse existing glazing. A single glazed window in conjunction with a wood storm window (combined R value of 2.0) is comparable to a modern sealed unit.

PLANTING BEDS: 
Expand planting areas where possible to support street trees and other plantings, and to intercept and detain stormwater.

AWNINGS: 
Keep the summer sun out of storefront windows. In the winter, they can be retracted to let the sun's warmth in.



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GREEN DOWNTOWNS INITIATIVE

REGIONAL BUS STOP: Consider adding a Concord Trailways stop to Main Street to make transit visible and accessible.



PEDESTRIAN WAYS: Expand and enhance pedestrian connections throughout downtown to create new walking routes and enhance pedestrian safety and comfort.



INTERSECTION IMPROVEMENTS: At heavily used crossings enhance pedestrian visibility and contribute to downtown character.



GREEN ROOFS: Insulate buildings, detain stormwater, reduce ambient air temperatures in summer, and create opportunities for urban agriculture, where existing buildings can support them.



EXPANDED SIDEWALKS: Support business by providing display space and seating areas for customers.

BIORETENTION: Reconfiguring parking lots to remove excess pavement creates opportunities for bioretention islands that detain and treat stormwater.

PLAZAS AND POCKET PARKS: Repurposing underutilized and "left over" spaces makes the downtown a more viable and attractive place to live, work and play.

The Masonic Temple today



The Masonic Temple in background



Aerial view of downtown Belfast

THE MASONIC TEMPLE

DOWNTOWN BELFAST 

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GREEN DOWNTOWS INITIATIVE

8 Steps to GREENER Buildings:

- Celebrate the fact that you are rehabilitating a historic building: the greenest building is an existing building!
- Take advantage of inherent energy conservation features of historic commercial buildings such as thermal walls, masonry construction, high ceilings, and windows.
- Restore historic windows rather than replace them. Use storm windows on upper story units.
- Insulate roof and foundation; isolate unheated spaces with insulation.
- Weatherstrip doors, caulk door frames, and construct an interior ventilator if feasible.
- Take advantage of advances in heating and cooling technology to improve energy efficiency and comfort.
- Install awnings at storefront windows to keep sun out in summer and let sun in in winter.
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UTILITIES:

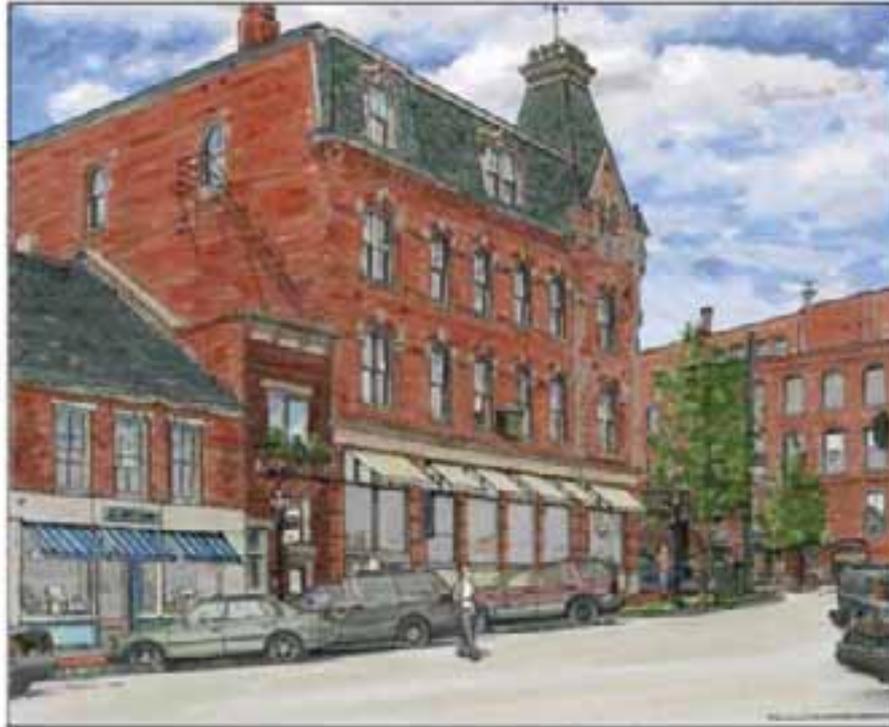
Replace individual air conditioning units with a central building-wide system to eliminate eyesores at street level, increase energy efficiency, and improve conditions for pedestrians. Bury electrical wires to eliminate visual clutter and increase sidewalk space.

BUILDING FABRIC:

Remove high-maintenance facade materials and restore to the original granite. Renovating existing buildings conserves construction materials and contributes to the long-term integrity of the historic downtown.

FULL OCCUPANCY:

Encourage residential uses in upper stories of downtown buildings.



LIGHTING:

Phase in new, energy-efficient LED lamps that reduce energy consumption and support the downtown's historic character.



WINDOWS:

Restore windows wherever possible. Reglaze only when it is not possible to reuse existing glazing. A single glazed window in conjunction with a wood storm window (combined R value of 2.0) is comparable to a modern sealed unit.



STREET TREES:

Expand planting areas at street corners to support street tree growth and longevity, and to intercept and detain stormwater.



AWNINGS:

Keep the summer sun out of storefront windows. In the winter, they can be retracted to let the sun's warmth in. Restored transom windows provide soft natural light to interior spaces.



The Masonic Temple today

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GREEN DOWNTOWNS INITIATIVE



THE LEMONT BLOCK

DOWNTOWN BRUNSWICK 

Green Design/Good Design

GREEN DOWNTOWNS INITIATIVE

8 Steps to GREENER Buildings:

- Celebrate the fact that you are rehabilitating a historic building: the greenest building is an existing building!
- Take advantage of inherent energy conservation features of historic commercial buildings such as shared walls, masonry construction, high ceilings, and windows.
- Restore historic windows rather than replace them. Use storm windows on upper story units.
- Insulate roof and foundation; insulate unheated spaces with insulation.
- Weatherstrip doors, caulk door frames, and construct an interior vestibule if feasible.
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BUILDING FABRIC:

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SIGNAGE IMPROVEMENTS:

Combine smaller scale directory signage for the Tontine Mall with a kiosk that orients visitors to downtown and provides information about local businesses.



The Tontine Block today

Green Design/Good Design

GREEN DOWNTOWNS INITIATIVE

IMPROVED CONNECTIONS:

To recreational resources and expanded public access to the waterfront increases opportunities for exercise and healthy social activity.

SOLAR PANELS:

Can be mounted on south-facing roofs in less visible locations to produce energy from a plentiful, renewable resource, without detracting from the downtown's historic character.

STREET TREES:

Can be planted in existing front yards or in newly created planting islands to shade streets and sidewalks, intercept stormwater and create a more pedestrian-friendly environment. Trees should be properly planted to avoid damage by automobiles. Select species that are appropriate for a downtown setting (i.e. free of messy fruit and not weak wood).

BIORETENTION:

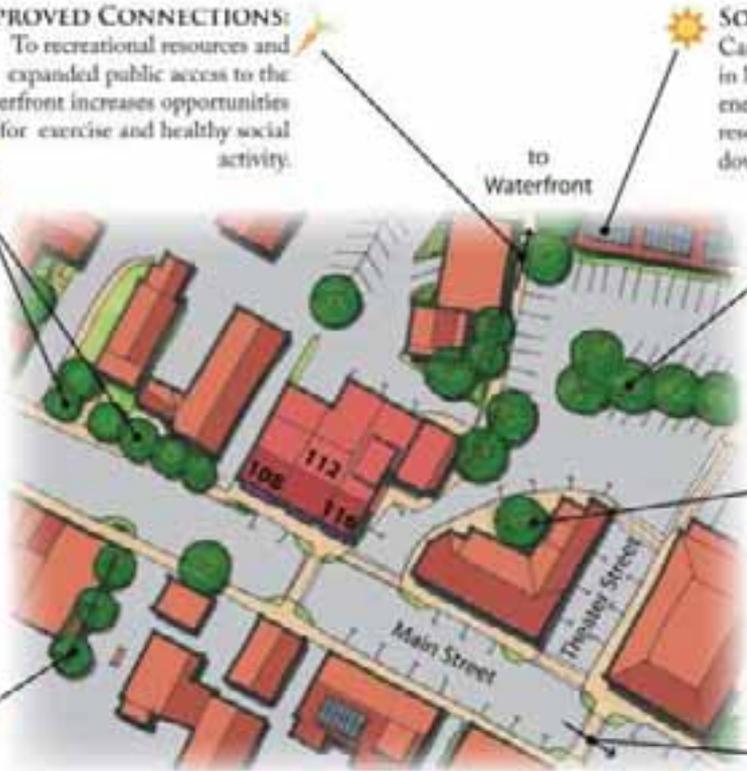
Reconfiguring parking lots to remove excess pavement creates opportunities for bioretention islands that detain and treat stormwater.

PLAZAS AND POCKET PARKS:

Repurposing underutilized and "left over" spaces makes the downtown a more viable and attractive place to live, work and play.

REGIONAL BUS STOP:

On Main Street makes transit visible and accessible.



108, 112 & 116 Main Street today



Historical view of the downtown



Aerial view of downtown Damariscotta

108, 112 & 116 MAIN STREET

DOWNTOWN DAMARISCOTTA

Green Design/Good Design

GREEN DOWNTOWNS INITIATIVE

8 Steps to GREENER Buildings:

- Celebrate the fact that you are rehabilitating a historic building; the greenest building is an existing building!
- Take advantage of inherent energy conservation features of historic construction, such as shared walls, masonry construction, high ceilings, and windows.
- Restore historic windows rather than replace them. Use storm windows on upper story units.
- Insulate roof and foundation; insulate unheated spaces with insulation.
- Weatherstrip doors, caulk door frames, and construct an interior vestibule if feasible.
- Take advantage of advances in heating and cooling technology to improve energy efficiency and comfort.
- Install awnings at storefront windows to keep sun out in summer and let sun in in winter.
- Install a green roof to save energy, minimize storm water runoff, and make downtown cooler in summer.

HEATING SYSTEMS:

An HVAC audit can help to determine inefficiencies in a building's current heating system and identify options for improving performance.

TRELLISES:

Planted trellises shade masonry walls, reducing the need for cooling in summer. Place trellises 12" from the wall to allow proper air flow, and plant with light, flowering vines appropriate to a downtown setting.

LIGHTING:

Replacing outdated cobra head style fixtures with new, energy-efficient LED lamps enhances the pedestrian realm and supports the downtown's historic character.

IMPROVED CONNECTIONS:

WINDOWS:

Restore windows wherever possible. Reglaze only when it is not possible to reuse existing glazing. A single glazed window in conjunction with a wood storm window (combined R value of 2.0) is comparable to a modern sealed unit.



REHABILITATION:

Renovate existing buildings to conserve construction materials and contribute to the long-term integrity of the historic downtown.



AWNINGS:

Keep the summer sun out of storefront windows. In the winter, they can be retracted to let the sun's warmth in.



PAVING:

Brick sidewalks that continue across driveways make pedestrian areas more visible and attractive. Brick is a long-lasting, locally available material that can easily be repaired in small areas if damaged.

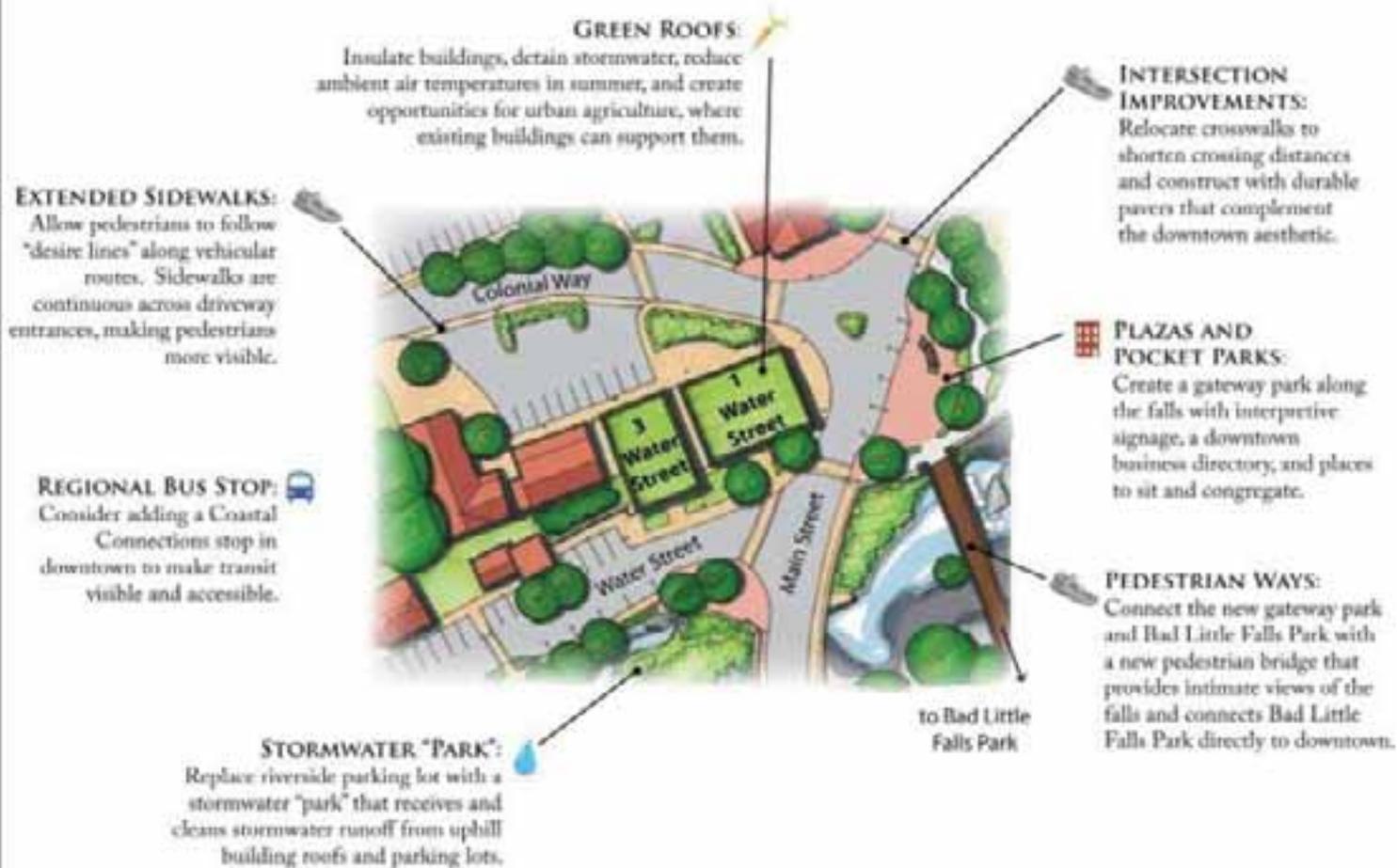
SOLAR PANELS:



206, 222 of 226 Main Street Today

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GREEN DOWNTOWNS INITIATIVE



1 of 3 Water Street today



Aerial view of downtown Machias

1 & 3 WATER STREET

DOWNTOWN MACHIAS



Green Design/Good Design

GREEN DOWNTOWNS INITIATIVE

8 Steps to GREENER Buildings:

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- Insulate roof and foundations; insulate unheated spaces with insulation.
- Weatherstrip doors, caulk door frames, and construct an interior vestibule if feasible.
- Take advantage of advances in heating and cooling technology to improve energy efficiency and comfort.
- Install awnings at storefront windows to keep sun out in summer and let sun in in winter.
- Install a green roof to save energy, minimize storm water runoff, and make downtown cooler in summer.

UTILITIES:

Replace individual air conditioning units with a central building-wide system to eliminate eyesores at street level, increase energy efficiency, and improve conditions for pedestrians. Bury electrical wires to eliminate visual clutter and increase sidewalk space.

BUILDING FABRIC:

Restore original sign bands. Renovating existing buildings conserves construction materials and contributes to the long-term integrity of the historic downtown.

FULL OCCUPANCY:

Encourage residential uses in upper stories of downtown buildings.



PAVING:

Brick sidewalks along building frontages create continuous, attractive pedestrian areas. Brick is a long-lasting, locally available material that can easily be repaired in small areas if damaged.



LIGHTING:

Phase in new, energy-efficient LED lamps that reduce energy consumption and support the downtown's historic character.



WINDOWS:

Restore windows wherever possible. Reglaze only when it is not possible to reuse existing glazing. A single glazed window in conjunction with a wood storm window (combined R value of 2.0) is comparable to a modern sealed unit.



PLANTING BEDS:

Expand planting areas where possible to support street trees and other plantings, and to intercept and detain stormwater.



AWNINGS:

Keep the summer sun out of storefront windows. In the winter, they can be retracted to let the sun's warmth in. Restored transom windows provide soft natural light to interior spaces.

GREEN ROOFS:

Insulate buildings, detain stormwater, reduce ambient air temperatures in summer, and create



INTERSECTION

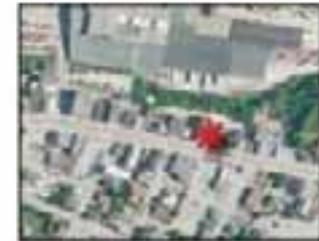
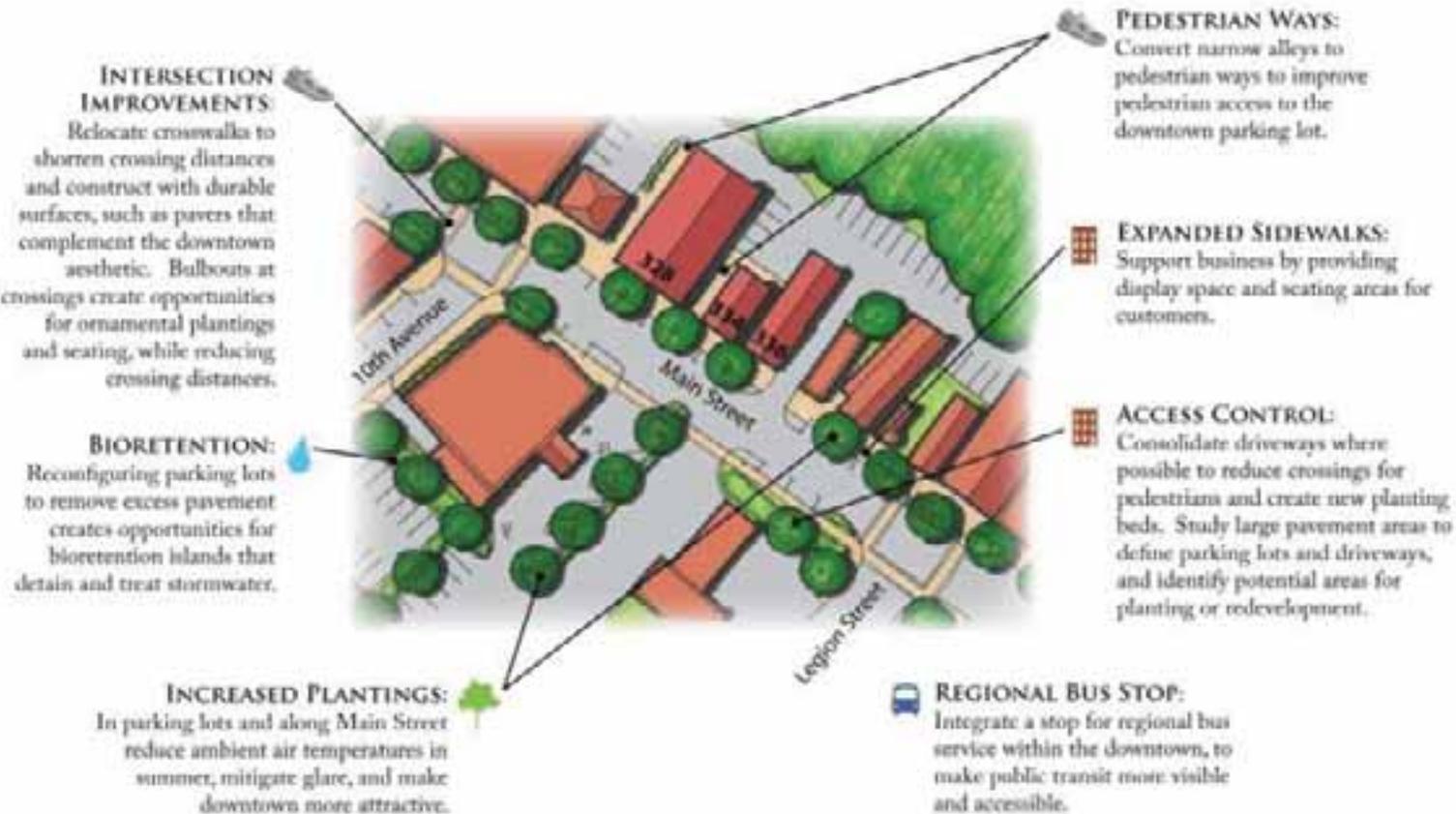


1 of 3 Water Street today

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GREEN DOWNTOWNS INITIATIVE

328, 334 & 336 Main Street today



Aerial view of downtown Madawaska

328, 334 & 336 MAIN STREET

DOWNTOWN MADAWASKA



Green Design/Good Design

GREEN DOWNTOWNS INITIATIVE

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- Restore historic windows rather than replace them. Use storm windows on upper story units.
- Insulate roof and foundation; isolate unheated spaces with insulation.
- Weatherstrip doors, caulk door frames, and construct an interior vestibule if feasible.
- Take advantage of advances in heating and cooling technology to improve energy efficiency and comfort.
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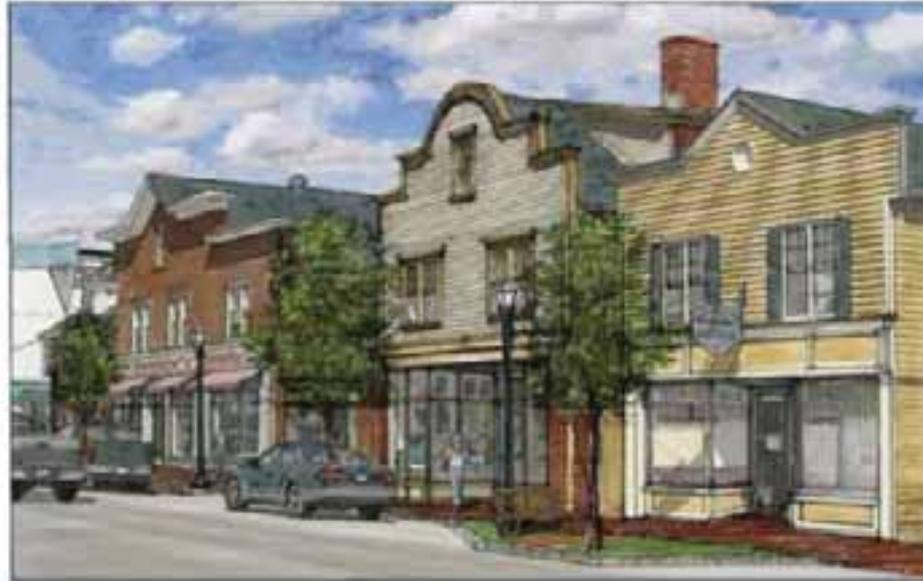
Bury or relocate electrical wires to eliminate visual clutter and increase sidewalk space.

BUILDING FABRIC:

Restore original siding, storefronts, and sign bands. Remove synthetic siding to expose original materials. Renovating existing buildings conserves construction materials and contributes to the long-term integrity of the historic downtown.

FULL OCCUPANCY:

Encourage residential uses in upper stories of downtown buildings.



PAVING:

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328, 334 & 336 Main Street today

Green Design/Good Design

RECENT REHABILITATION SUCCESSSES



Green Design/Good Design

RECENT REHABILITATION SUCCESSES



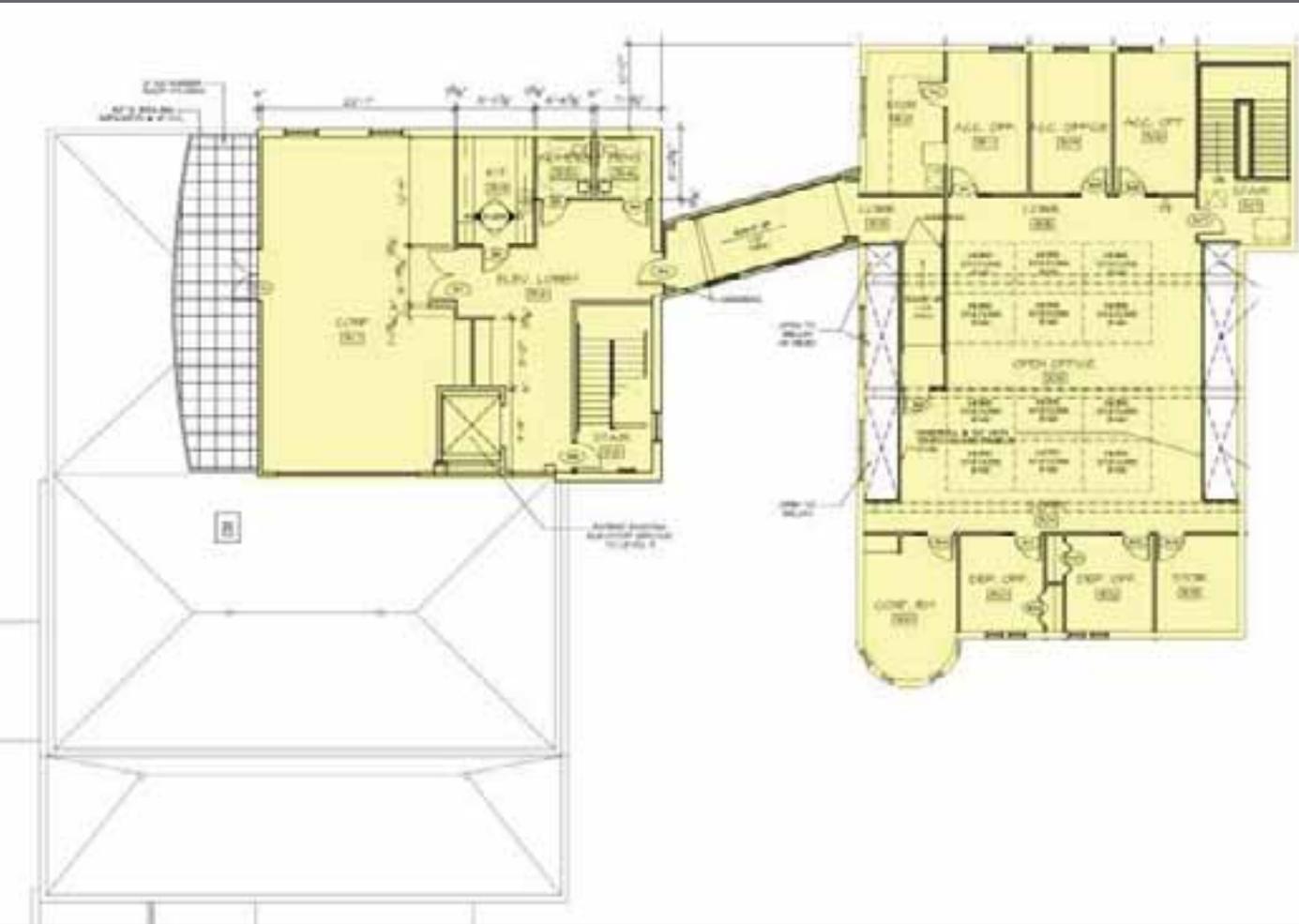
1888 Unitarian
Church Vestry
by Wilfred Mansur

Green Design/Good Design

RECENT REHABILITATION SUCCESSES

Merrill Bank acquires property and expands into 1888 Vestry Bldg

Level Three created within the auditorium space...



Green Design/Good Design

RECENT REHABILITATION SUCCESSSES



- 2006 Maine Downtown Center Award
- 2007 Maine Preservation Honor Award



Green Design/Good Design



- Maine Downtown Center : www.mdf.org/mdc_overview.php
- GrowSmart Maine : www.growsmartmaine.org
- Maine Preservation : www.maine Preservation.org
- National Trust for Historic Preservation : www.preservationnation.org
- ME Bur. Of Codes & Standards : www.maine.gov/dps/bbcs

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