

TOWN OF KENNEBUNKPORT, MAINE

– INCORPORATED 1653 –

Growth Planning Committee
May 21, 2024 | 6:00PM – 8:00PM
Hybrid Meeting Agenda

Please click the link below to join the webinar:

<https://us06web.zoom.us/j/89312438020>

Or Telephone: 929 205 6099

Webinar ID: 893 1243 8020

1. Review and approve minutes from **May7, 2024**.
2. Low Impact Development (LID) & Stormwater Discussion.
3. Other Business



TOWN OF KENNEBUNKPORT, MAINE
~ INCORPORATED 1653 ~

MEMORANDUM

Date: May 15, 2024
To: Growth Planning Committee
From: Galen Weibley
Re: Introduction to Low Impact Development (LID) & Stormwater Discussion

On May 7th the GPC members heard a presentation from Environmental Engineer Cody Obropta from Maine department of Environmental Protection regarding the principles of Low Impact Development (LID) techniques that can be applied to new development to mitigate hydrological runoff during heavy rain events. Possible improvements include:

- Design Phase Planning
 - Built Vertical reduce footprint
 - Utilize Pervious Surfaces when possible
 - Infiltrate roof run off to green infrastructure
 - Distribute treatment throughout the site
 - Drain systems for driveways (areas with salt application)
 - Rainwater capture reuse (rain barrels)
- Site Layout
 - Utilize fingerprinting technique for development
 - Avoid soil compaction and de-compact post development
 - Avoid/protect natural resources (wetlands, streams, habitats of significant importance)
- Green Infrastructure
 - Bioretention Systems (rain gardens, soil filters, bioswales, buffers)
 - Porous Pavement/pavers for sidewalks and parking
 - Plant canopy replanting

What do the Town Codes contain for Stormwater Management/LID Standards? :

Land Use Code (Site Plan Review)

Stormwater management. Stormwater management plans shall be developed so as to ensure that surface water runoff shall be minimized and detained on site if possible. If it is not possible to detain water on site, downstream improvements may be required to minimize off-site impacts. The natural state of watercourses, swales, floodways or existing rights-of-way and easements shall be maintained as nearly as possible. Where the development involves more than 10,000 square feet of impervious surface, a stormwater drainage system capable of handling a fifty-year storm without adverse impact on adjacent properties and downstream facilities shall be constructed. Stormwater and surface water runoff, whether channelized or not, shall not be diverted onto adjacent properties without an easement, unless in a natural or previously existing channel.

Subdivision Chapter

Adequate provision shall be made for the management of the quantity and quality of all stormwater generated within the subdivision, and any drained groundwater through a management system of swales, culverts, under drains, storm drains and best management practices equivalent to those described in the Stormwater Management for Maine: Best Management Practices, published by the Maine Department of Environmental Protection, 1995 (or most recent edition), in conformance with the policies of the Comprehensive Plan and subsequent amendments or revisions. The stormwater management system shall be designed to conduct stormwater flows to existing watercourses or storm drains and to meet the following standards:

A. Quantity. Peak discharge rates shall be limited to the predevelopment levels for the two-, ten-, and twenty-five-year frequency, twenty-four-hour duration storm, unless stormwater from the subdivision will drain directly into a major water body such as a great pond or the ocean.

B. Quality.

(1) Subdivisions. Stormwater runoff in subdivisions must be treated by the use of best management practices equivalent to those described in the Stormwater Management for Maine: Best Management Practices, published by the Maine Department of Environmental Protection, 1995 (or most recent edition), to achieve, by design, 40% reduction in total suspended solids.

(2) Where necessary to achieve the above standards, there shall be provided easements or drainage rights-of-way with swales, culverts, catch basins or other means of channeling surface water within the subdivision and over other properties. Wherever the storm drainage system is not within the right-of-way of a public street, perpetual easements shall be provided to the municipality allowing maintenance and improvement of the system.

(3) Proposed projects which need a stormwater permit from the Maine Department of Environmental Protection, pursuant to Chapter 500 and Chapter 502 regulations, [\[1\]](#) shall meet both the state regulations and the requirements of these regulations. In the case of any conflicting requirements, the stricter shall be applied.

[\[1\]](#) *Editor's Note: See 06-096 CMR Ch. 500, Stormwater Management, and Ch. 502, Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams.*

What areas are exempt from stormwater or LID Standards?

- detached single-family dwellings,
- accessory apartments,
- two-family dwellings,
- accessory buildings,
- driveways and parking areas; or
- structures associated with agriculture, farm stands or storage and repair of fishing equipment.

What options can the Town consider moving forward?

- Closing Exemptions to Stormwater review (Townwide Reg. Update)
 - Consider the use of rain gardens, bioswales, buffers in site layout to retain water on site.
 - Post development soil decompaction.
 - Require PW sign off to any municipal stormwater system tie in
- Uniform Stormwater Language for Reviews in LUO
- Require Fingerprint Clearing for future development on forested lots.
- Reform Maximum Lot Coverage to include all impervious surfaces allow reduction for pervious pavement usage vs impervious pavement or gravel.
- Expand 40% reduction of tree clearance outside shoreland zone over ten-year period.
- Prevention of wetland filling in and utilization of existing wetlands for retention of non-saline stormwater runoff

Actions to Consider

The GPC Members should consider the questions above in preparation for a conversation with staff regarding the direction the town would like to explore in greater detail. Feedback will aid staff in researching draft language that will fit the town objectives.

Enclosures

PowerPoint Slides from Maine DEP



Stormwater Management and Low Impact Development

Cody Obropta, PE
Environmental Engineer
Stormwater Engineering Team

For the Town of Kennebunkport Growth Planning Committee – May 2024

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

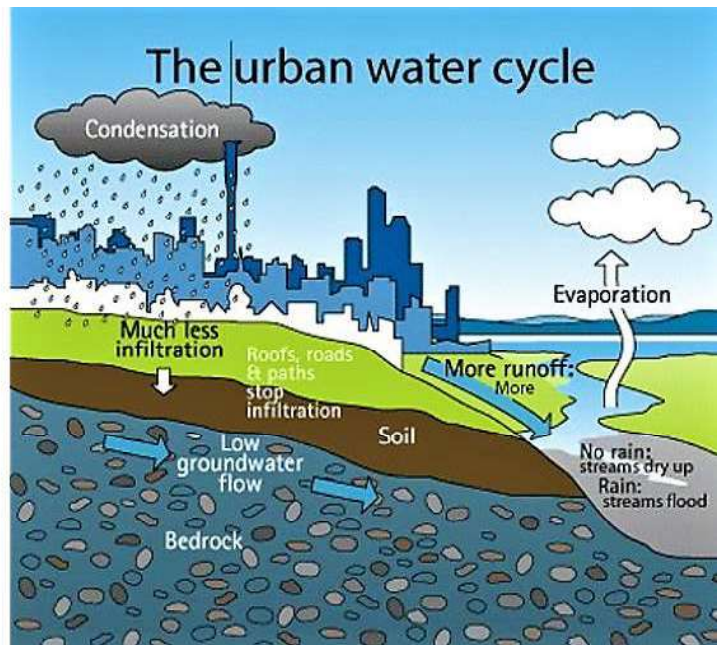
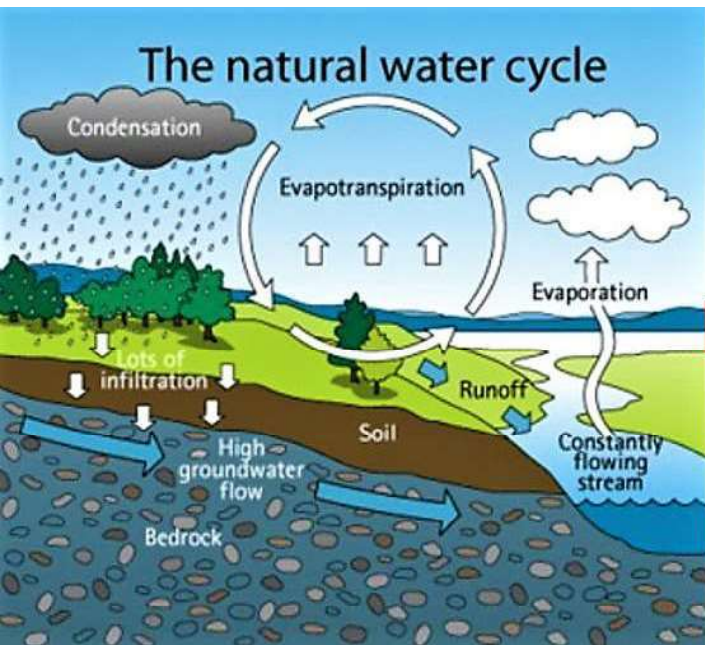
Protecting Maine's Air, Land, and Water

Overview

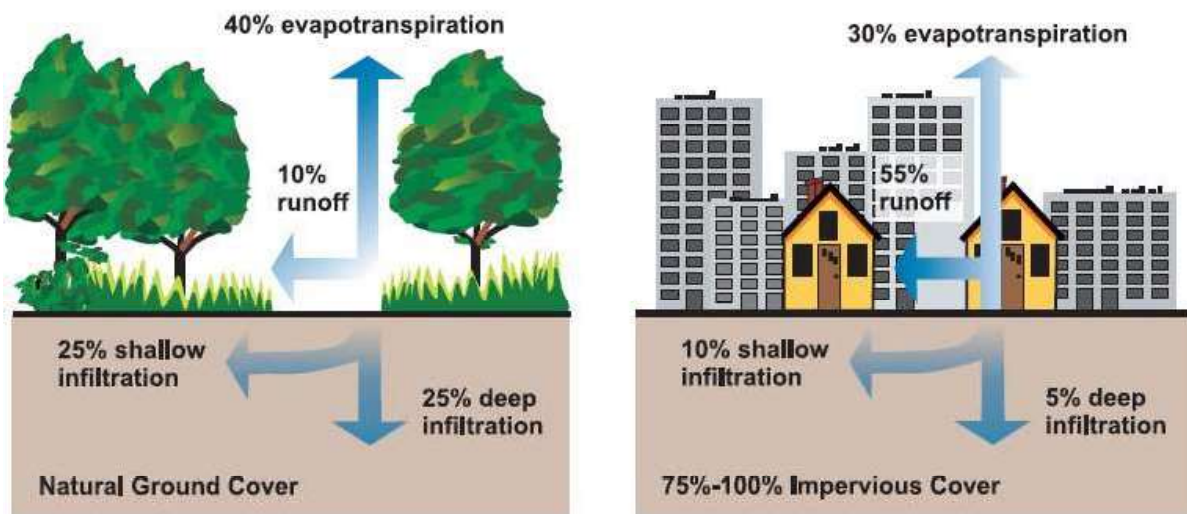
- Stormwater Management 101
- Intro to Low Impact Development
- Green Infrastructure
- LID Examples
- Final Thoughts



The Water Cycle



Pre-Development vs. Post-Development

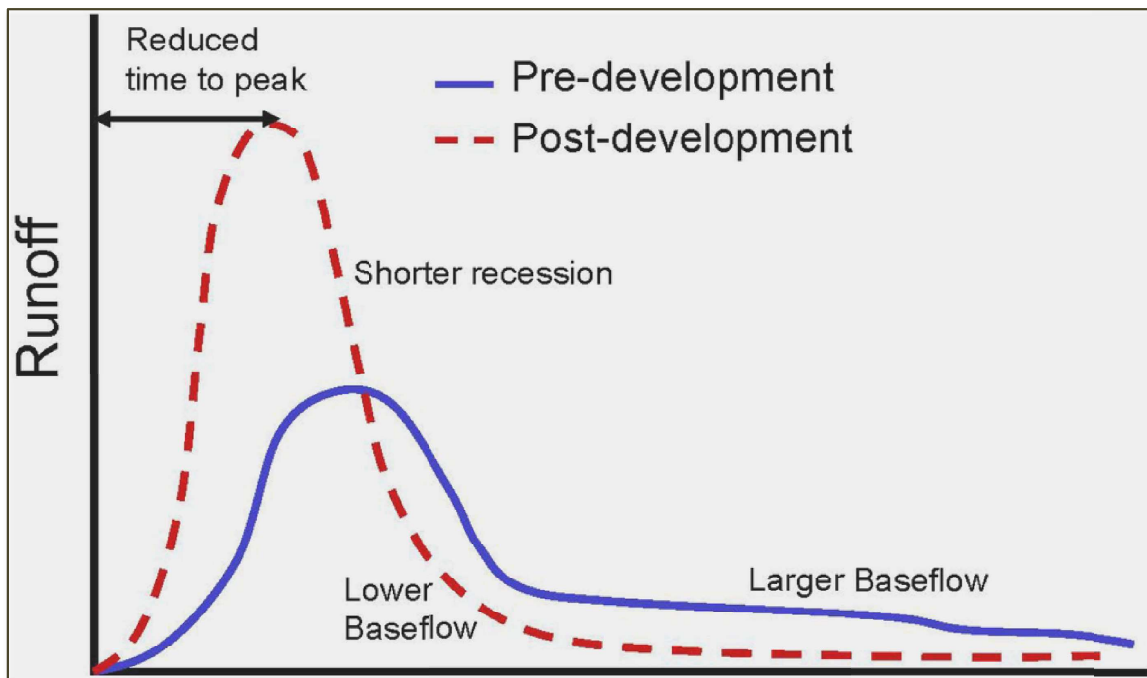


Pollutants of Concern

- Chlorides (Salt)
- Hydrocarbons
- Phosphorous
- Nitrogen
- Trash / Litter
- Sediment



Hydrographs – Explaining Stormwater Flow



How Do We:

- Capture and treat harmful pollutants
- Slow stormwater runoff
- Maintain predevelopment hydrology

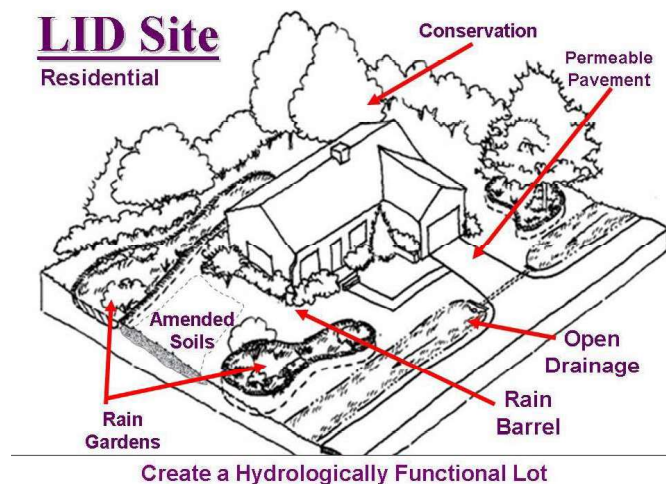


Introducing Low Impact Development

Fundamental goal: mimic natural hydrology.

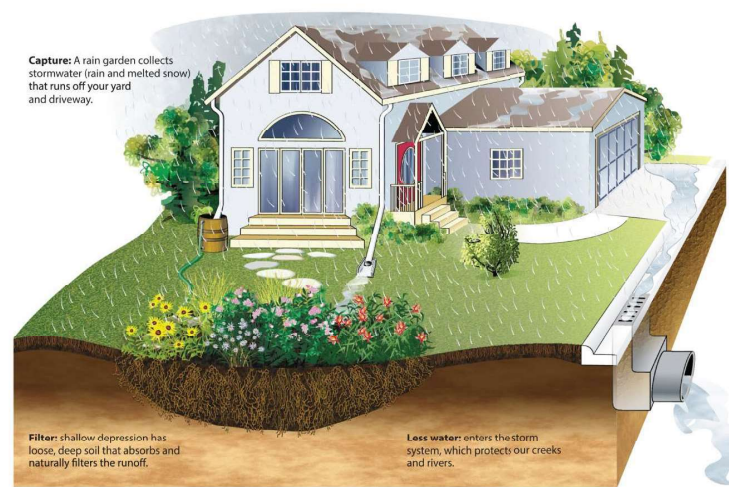
How it's accomplished:

- Design phase planning decisions
- Site layout
- Green infrastructure



Design Phase Planning Decisions

- Minimize impervious area
 - Building vertical = reduced footprint
 - Utilize pervious surfaces where possible
- Maximize impervious area treatment
 - Infiltrate roof runoff
 - Utilize green infrastructure
 - Distribute treatment throughout site
 - Open drainage systems
- Rainwater capture & re-use





Site Layout

- Protect natural drainage features
- Avoid and protect natural resources
 - wetlands, habitat, streams, etc.
- Preserve existing vegetation
 - Clear only what is necessary
- Avoid soil compaction
 - And/or de-compact soils post-construction

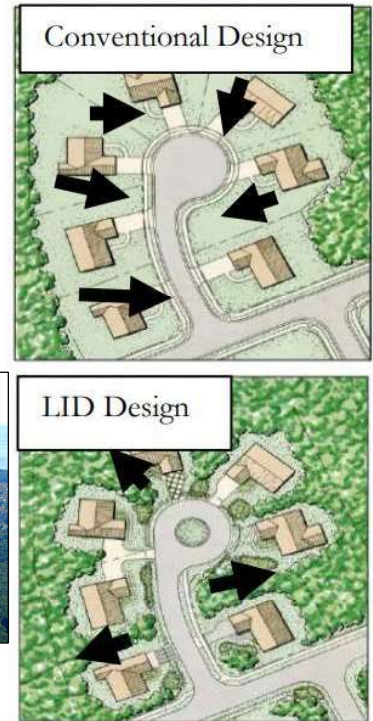


Figure 3.6 - conventional approach of draining runoff to the streets vs. a LID design using site fingerprinting.

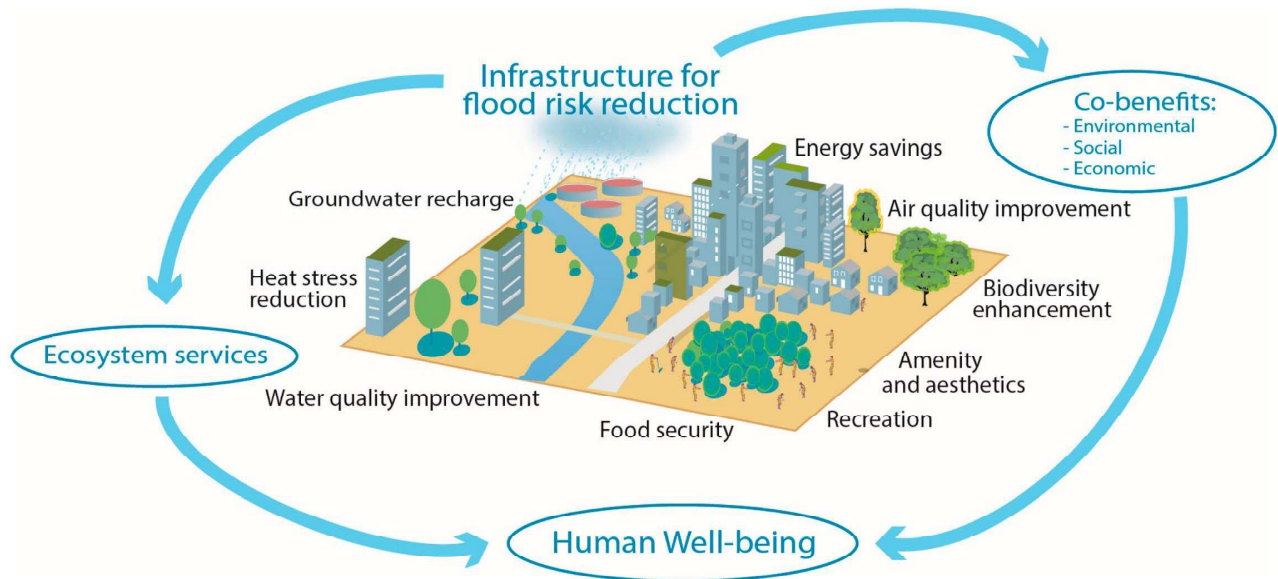


Green Infrastructure

- Practices that use or mimic natural systems to manage stormwater runoff



Green Infrastructure Co-Benefits



Economic Co-Benefits

Increase tourism, benefit pedestrians, and create an environment where people want to spend time.

- Noise dampening
- Traffic calming
- Heat reduction in summer
- Aesthetic value



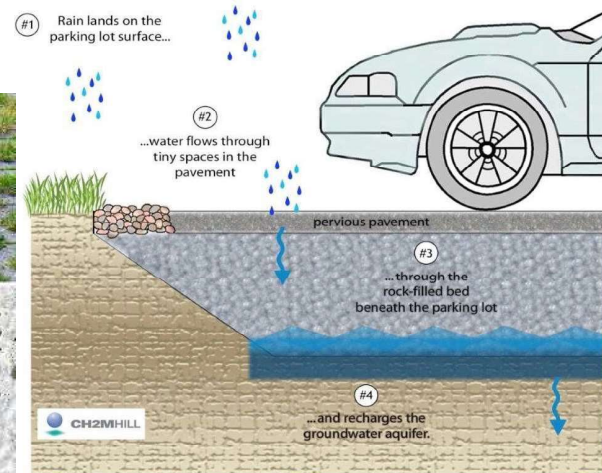
Bioretention Systems

- Rain gardens, soil filters, bioswales, buffers, etc.
- Incorporates vegetation for filtration and nutrient removal
- Slows and cools runoff



Porous Pavement

- Filters stormwater
- Slower runoff release
- Cooler than standard asphalt in summer & warmer in winter
- No black ice



Green Roof

- Capture and filter stormwater at the source
- Drastically increases evapotranspiration
- Insulates building
- Aesthetic benefits



Low Impact Development Examples

Vertical construction = additional commercial/residential space
(Reducing Impervious Areas)



Public Transportation =
Reduction in Parking Needed
(Reducing Impervious Areas)

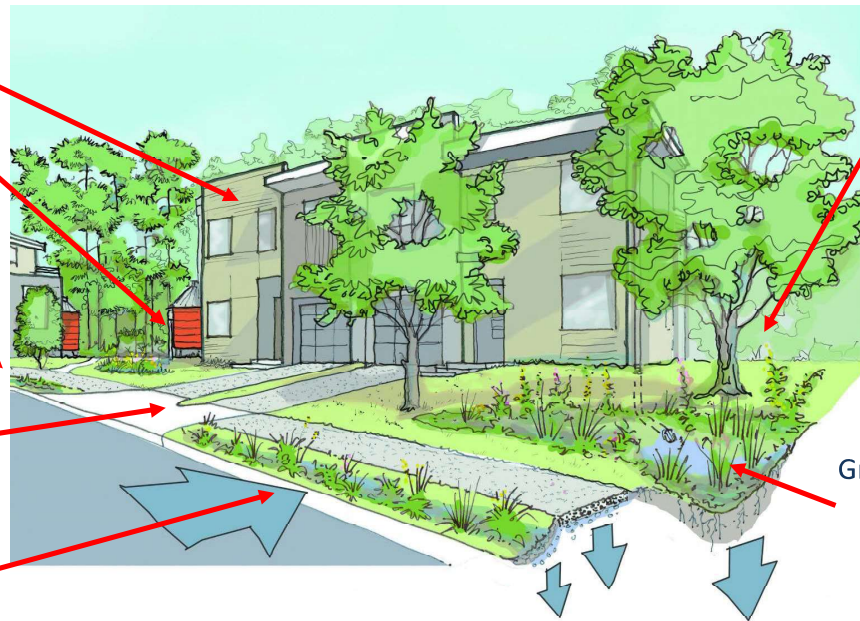


Mature trees preserved
(better stormwater quality treatment and
maintaining local ecosystem)



Low Impact Development Examples

- Vertical Development
- Rainwater Collection & Re-use
- Walkable Environment = Less Reliance on Personal Vehicles & Associated Reduction in Impervious Cover
- + Pervious Cover Opportunity
- Narrow Driveway with Grass Separation = Reduce Impervious Cover
- Open Channel Conveyance and Water Quality Treatment



Preservation of Native Plants

Green Infrastructure + Small-Scale, Disconnected Stormwater Treatment



Low Impact Development Examples

Vertical Development

Pervious Pavement Opportunities:
Mimic Natural Hydrology +
Stormwater Quality Treatment

Natural Ecosystem Incorporation:
Reduce Urban Heat Island +
Improve Biodiversity
+ Aesthetics



Tree Pits: Green Infrastructure &
Incorporate Natural Ecosystem

Walkable / Bikeable Environment = Less Reliance
on Personal Vehicles (reduces pollutant loading) &
Associated Reduction in Impervious Cover
+ Pervious Cover Opportunity



LID Final Thoughts:

- Low Impact Development benefits the community and broader ecosystem
- State-Level LID Standards
 - Challenging to create catch-all standards for the entire state
 - Certain LID practices may be easier/challenging in different communities
 - Chapter 500 update will likely include LID standards.
- Required in MS4 Communities
 - Having difficulty creating clear, specific, measurable standards
 - Some turning to checklists / point systems
 - Some reliance on future state guidance

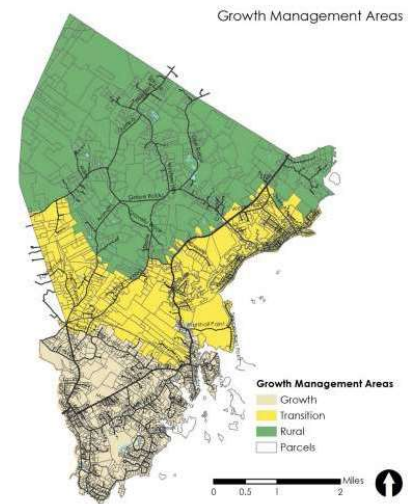


Figure 18-16 Growth management areas

Vision Statement
We envision the town of Kennebunkport as a coastal Maine community that is diverse and well balanced. The town will be recognized by residents, visitors and the State of Maine for its integrity and ability to set dynamic priorities and achieve them through comprehensive accountability. Our community will work collaboratively with residents, business owners and regional partners on challenges including sea level rise, diversity, housing, and others that we share in southern Maine. As we adapt, we will preserve Kennebunkport's historic integrity, protect our natural resources, strengthen our unique small-town character while improving economic vitality. Our tree-shaded streets, scenic vistas, unspoiled coastline, classic architecture and beautiful landscapes will continue to inspire visitors and residents alike.





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