

# **Planning for Water Quantity for Future Development**

Susan Licardi,  
Director of Water Supply

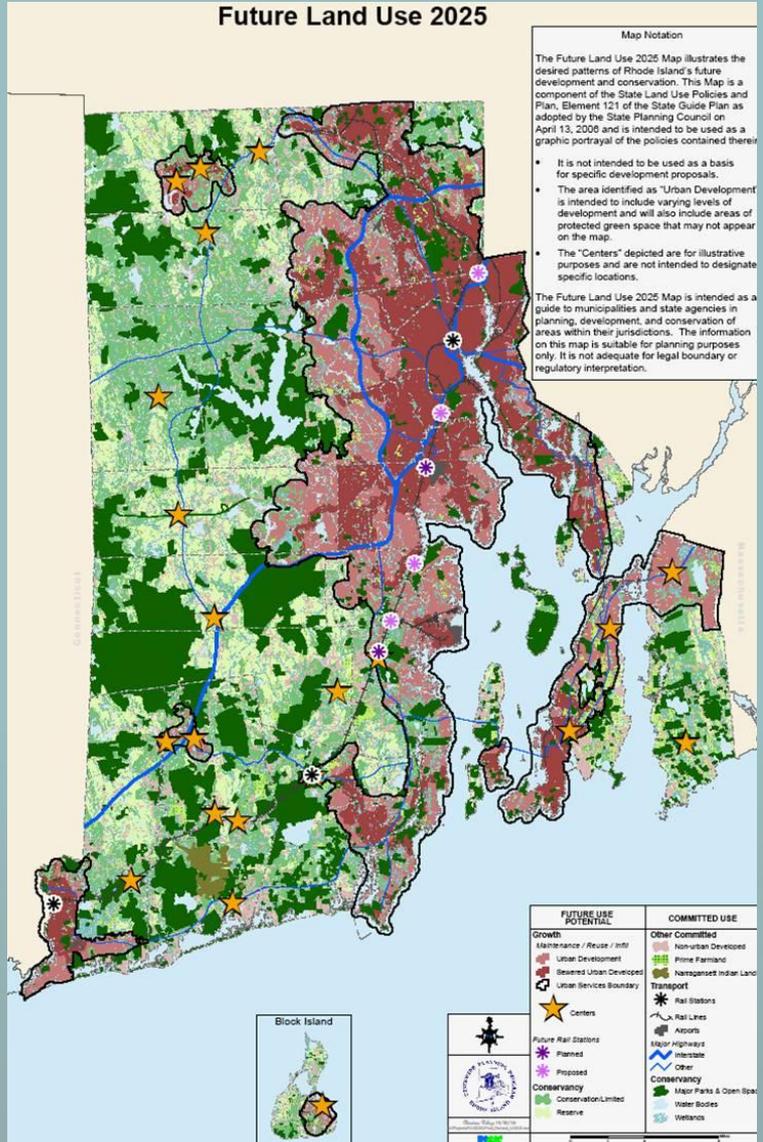
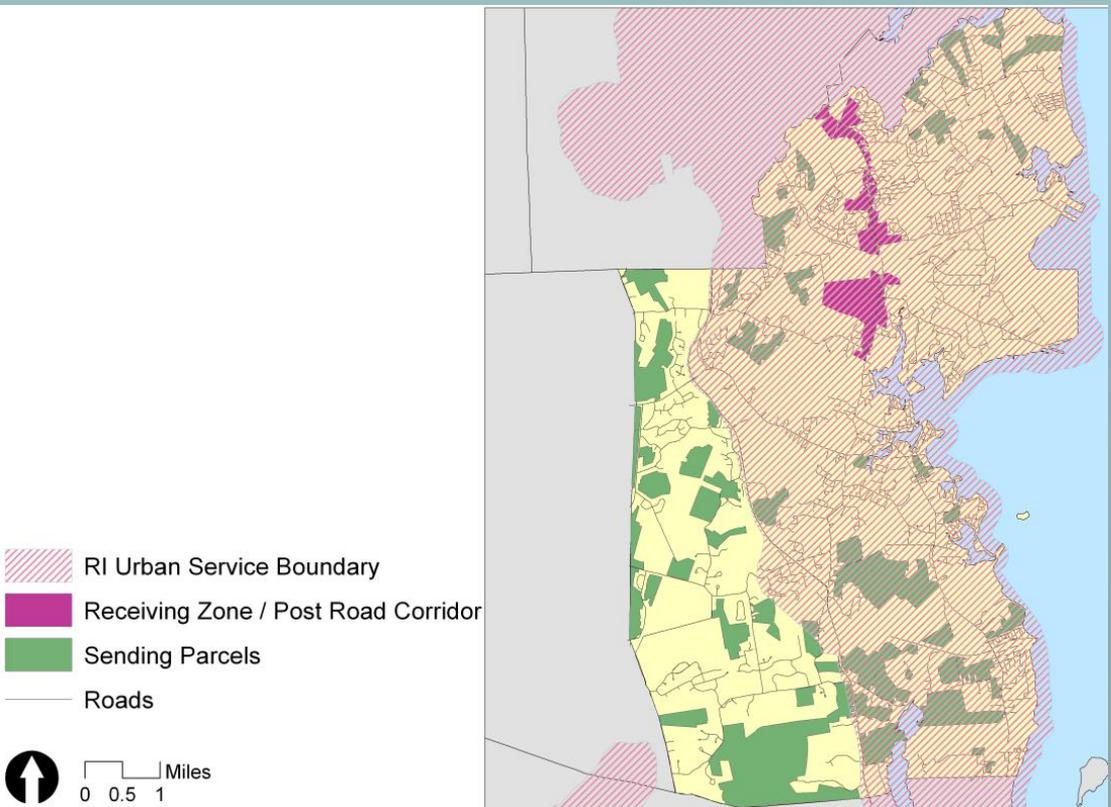
Jonathan Reiner, AICP  
Planning Director

North Kingstown, Rhode Island

July 30, 2012

# Land Use 2025

## State Land Use Policy Plan Urban Services Boundary



# Infrastructure availability and how do we plan for future growth to coincide with that availability?

Do the Needs = Available Supply?

- Sewer
- Water

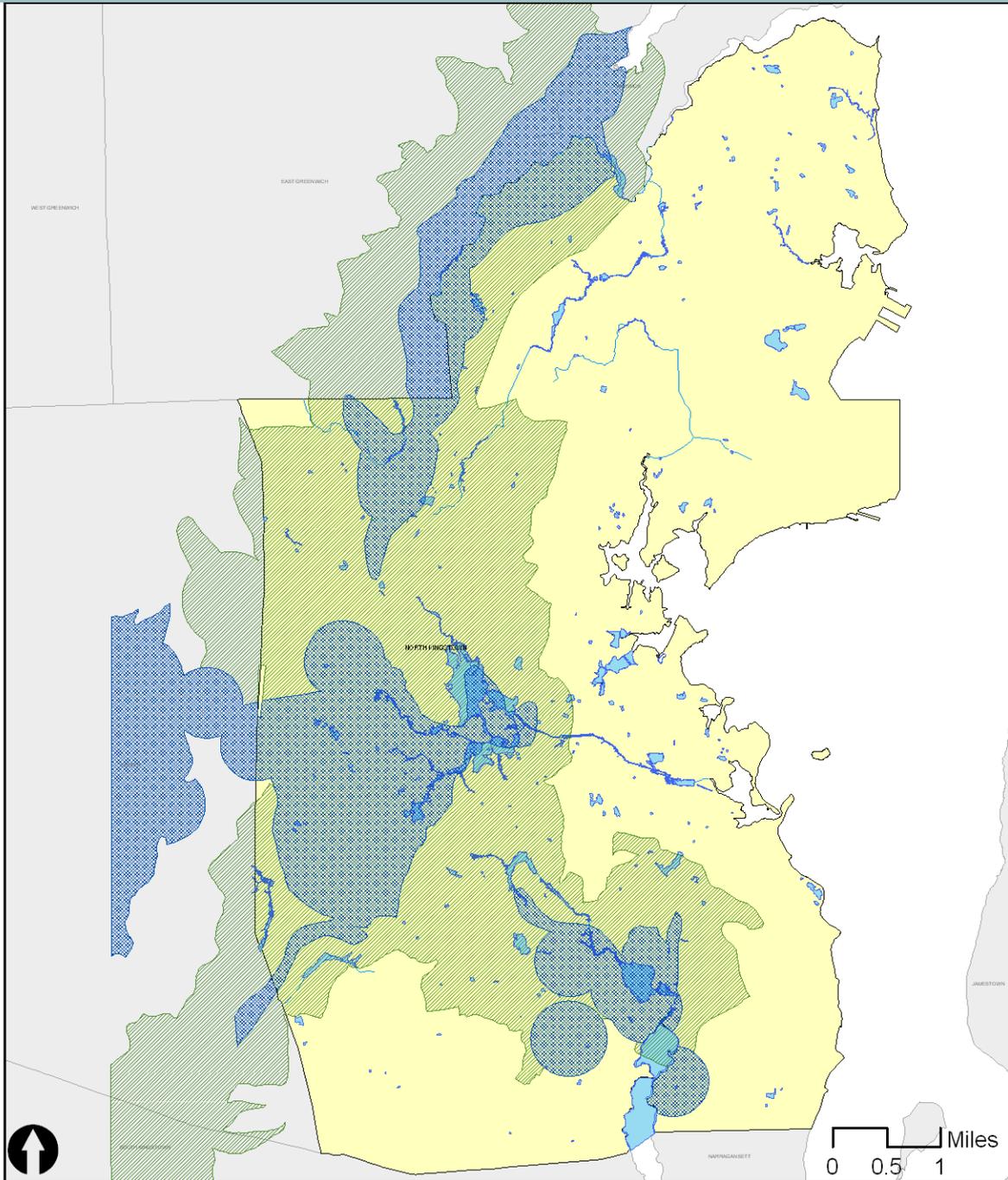
# Water Planning in North Kingstown

- North Kingstown has 3 groundwater aquifers that are all interrelated, known as the HAP; 11 ground water wells
- WSMP is a component of the municipal Comprehensive Plan.
- Groundwater protection districts encompass approximately 44% of North Kingstown
  - Limits on density – 1 du/2 acres res; nitrate loading for commercial
  - Uses - limits or prohibition; SUP or dev stds.
- Adopted a water service area to limit uncontrolled expansion of the system.
- Hydraulic modeling required for all water main extensions

# Groundwater Protection Zones in North Kingstown

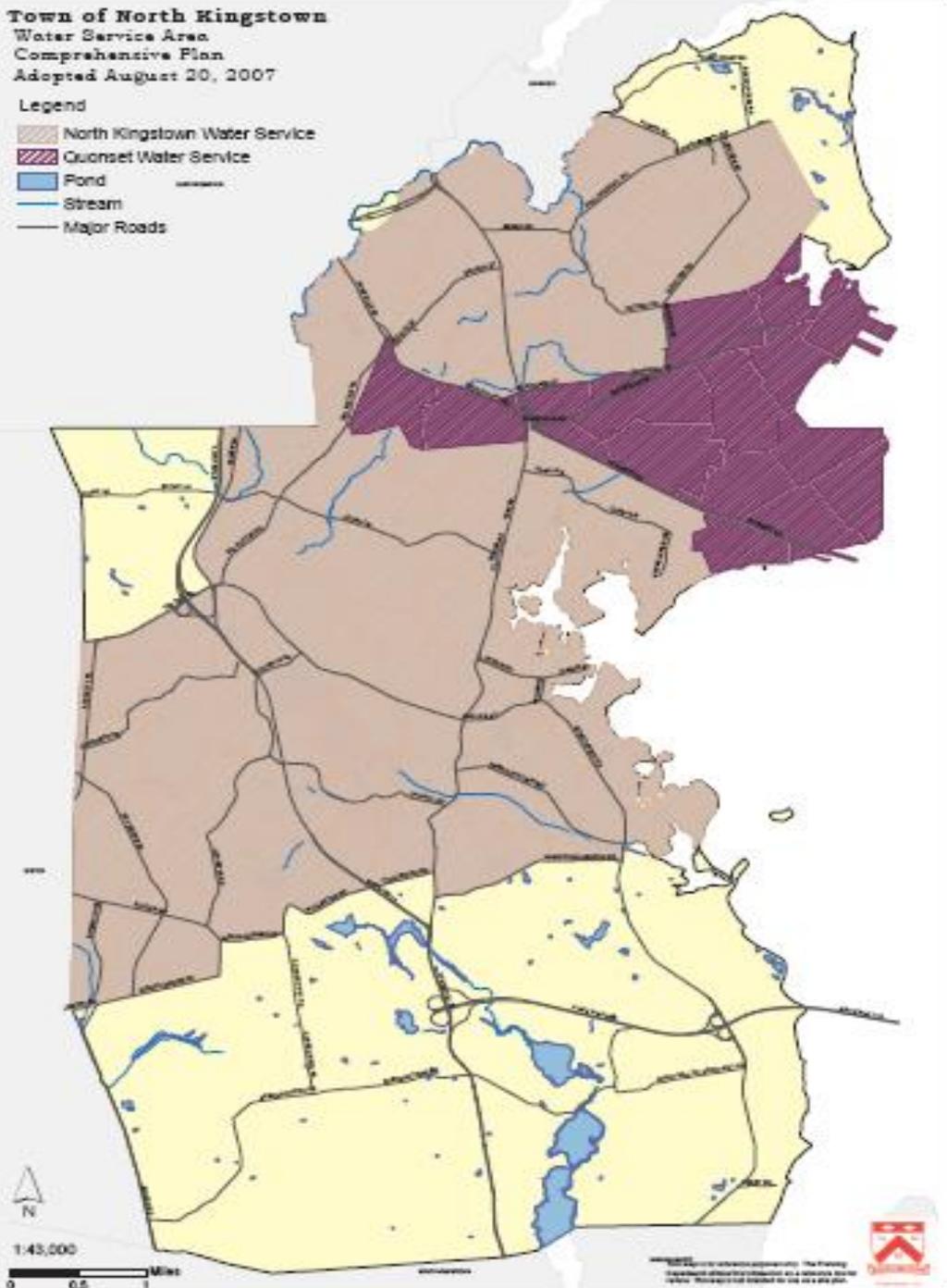
## Legend

- Groundwater Protection Zone 1
- Groundwater Protection Zone 2
- Pond
- Stream



**Town of North Kingstown**  
Water Service Area  
Comprehensive Plan  
Adopted August 20, 2007

- Legend
- North Kingstown Water Service
  - Quonset Water Service
  - Pond
  - Stream
  - Major Roads

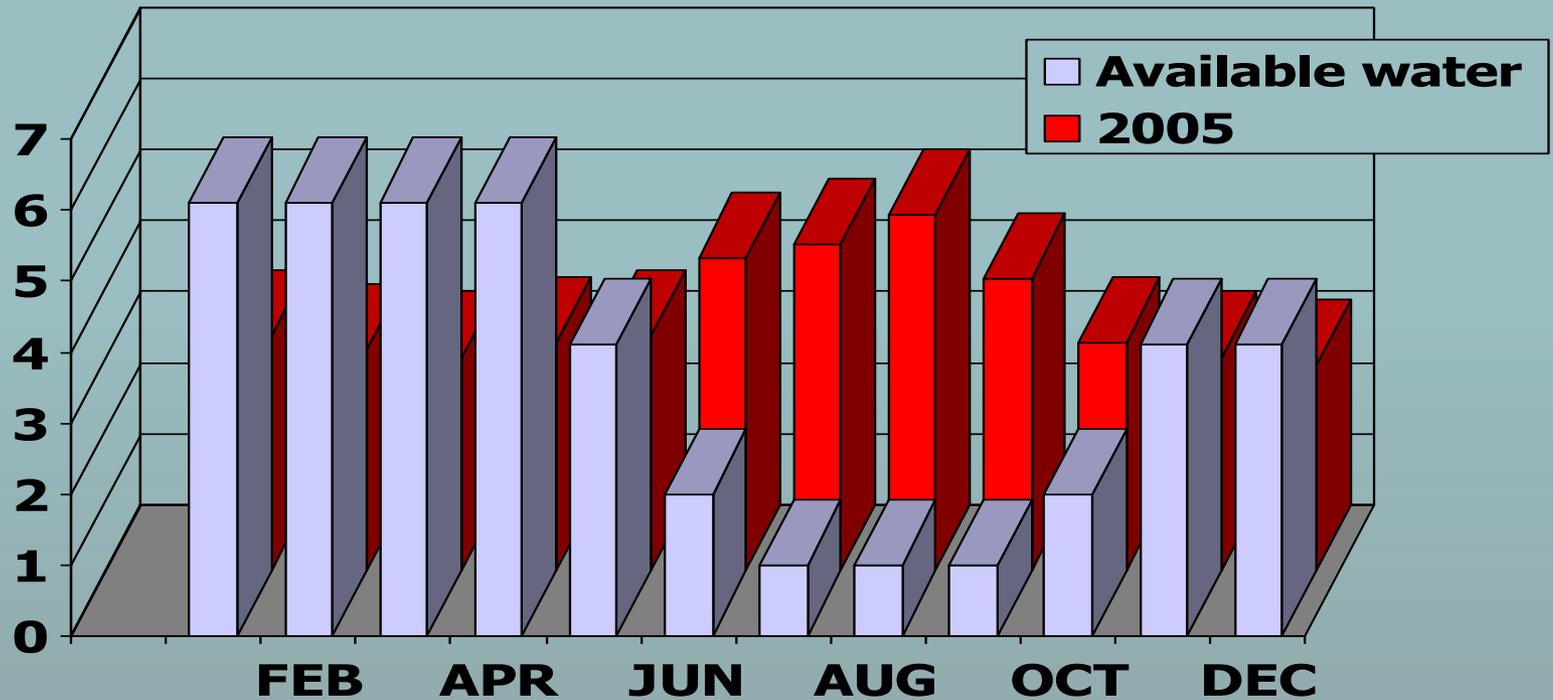








# Hunt River Withdrawals



**NORTH KINGSTOWN**  
**CURRENT WATER DEMAND**  
**(Hydraulic Model Update 2009)**

**Average Demand (ADD): 3.45 MGD**

**Maximum Day Demand (MDD): 8.13 MGD**

**Total Available: 8.0 MGD**

**We have available:**

**ADD: +4.55 MGD**

**MDD: - .13 MGD**

# Post Road, Water, and Build-out

- Build-out analysis for land use and water use (working with PARE Corp)
  - Multiple Scenarios
    - Status quo
    - Post Road
    - TDR and no TDR
    - For entire corridor at BO, need additional 1 MGD ADD
- Hydraulic Model update
  - Latest data on pumping, water use, and new developments
  - Previously updated in 2003

# ADDITIONAL WATER DEMAND

## POST ROAD SOUTH DISTRICT BUILD OUT DEMAND

	<u>MGD</u>
ADD	0.60
MDD	1.42

## POST ROAD NORTH DISTRICT BUILD OUT DEMAND

	<u>MGD</u>
ADD	0.38
MDD	0.90

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<b>TOTALS:</b>	ADD	4.43	
(current demand + Post Rd)	MDD		10.45
	ADD	+3.57	
	MDD	-2.45	

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# ADDITIONAL DEMAND OTHER BUILD OUT SCENARIOS

## BUILD OUT WITHIN WATER SERVICE AREA WITH TDR

	<u>MGD</u>
ADD	2.65
MDD	6.25

## BUILD OUT WITHIN WATER SERVICE AREA NO TDR

	<u>MGD</u>
ADD	3.40
MDD	8.02

## TOWNWIDE BUILD OUT WITH TDR

	<u>MGD</u>
ADD	3.07
MDD	7.25

# RI WATER RESOURCES BOARD WATER DEMAND PROJECTIONS

## SOUTHERN REGION CURRENT WATER DEMAND

Average Demand: 19 MGD

Summer Demand: 29 MGD

Total Available: 22 MGD

Average: + 3 MGD

Summer: - 7 MGD

## PROJECTED 2025 WATER DEMAND

Average Demand: 25 MGD (- 3 MGD)

Summer Demand: 38 MGD (- 16 MGD)

## PROJECTED BUILD-OUT WATER DEMAND

Average Demand: 34 MGD (- 12 MGD )

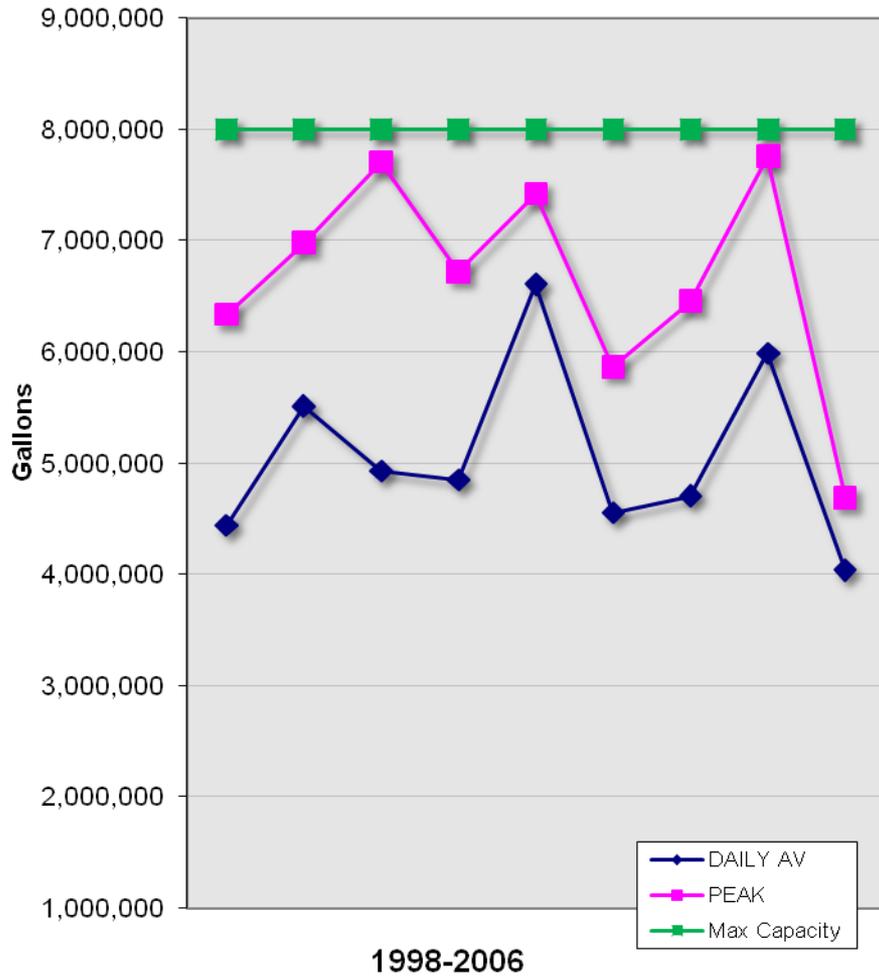
Summer Demand: 52 MGD (- 30 MGD)

# Water Peak Use

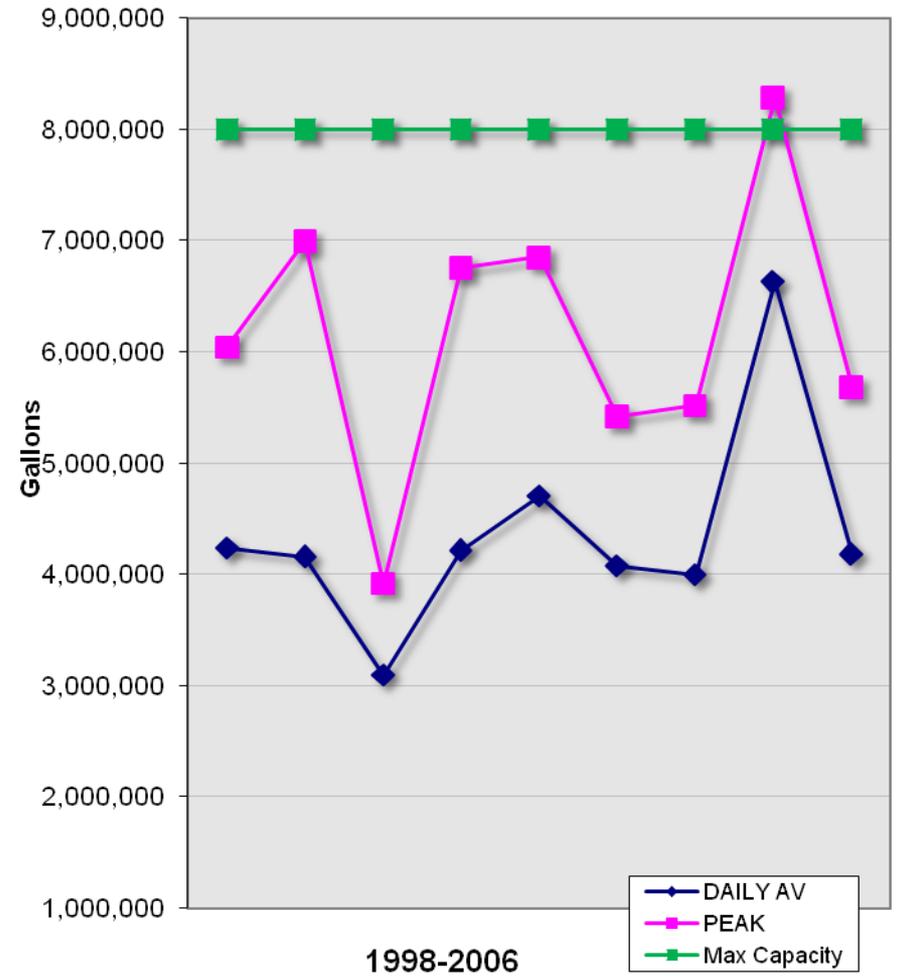
- How can we plan for future development if we do not have enough water year round?
- What are we to do and what can we plan for from a water peak usage standard?

# North Kingstown Water Monthly Pumping Data

## July Daily Average and Peak Usage

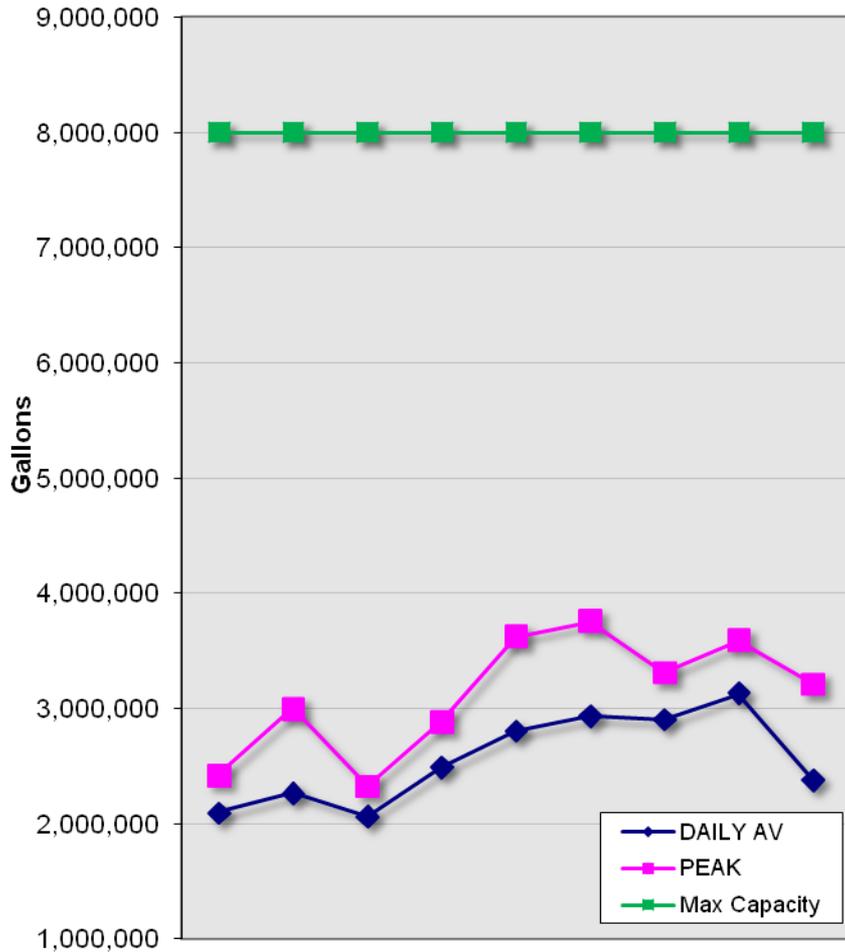


## August Daily Average and Peak Usage



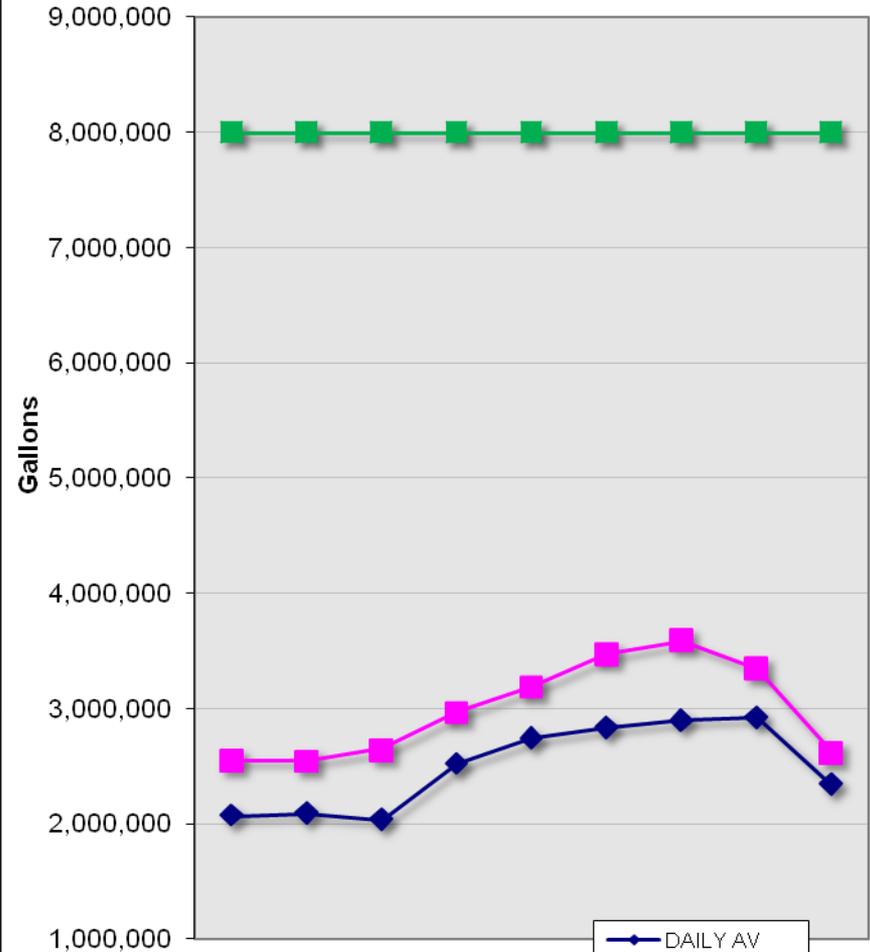
# North Kingstown Water Monthly Pumping Data

## November Daily Average and Peak Usage



1998-2006

## December Daily Average and Peak Usage



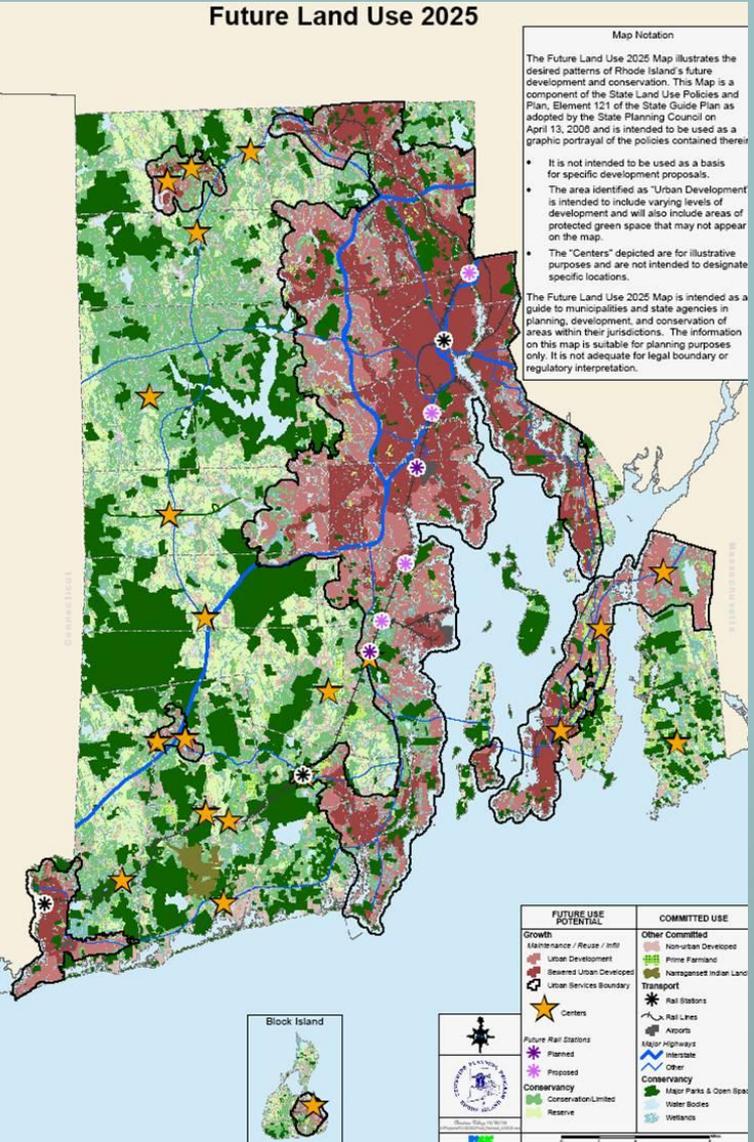
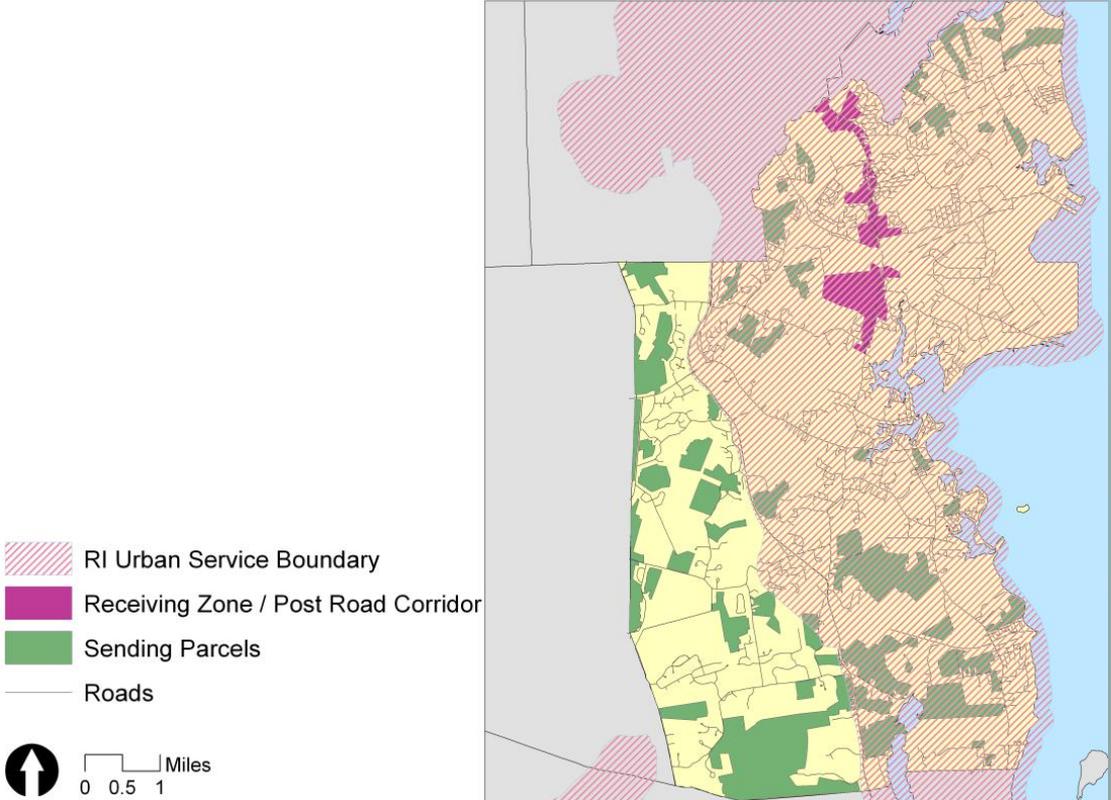
1998-2006

# Summary of water use

- Average daily demand for non summer months is approximately 2.45 MGD
- Average daily demand including the summer months is 3.5 MGD
- Peak pumping capacity is 7.9 MGD
- Peak usage exceeded pumping capacity in 2005, 8.2 MGD

# Land Use 2025

## State Land Use Policy Plan Urban Services Boundary



## NORTH KINGSTOWN POST ROAD CORRIDOR PLAN



### Healthy Places by Design, North Kingstown, Rhode Island

Town of North Kingstown and West Bay Family YMCA

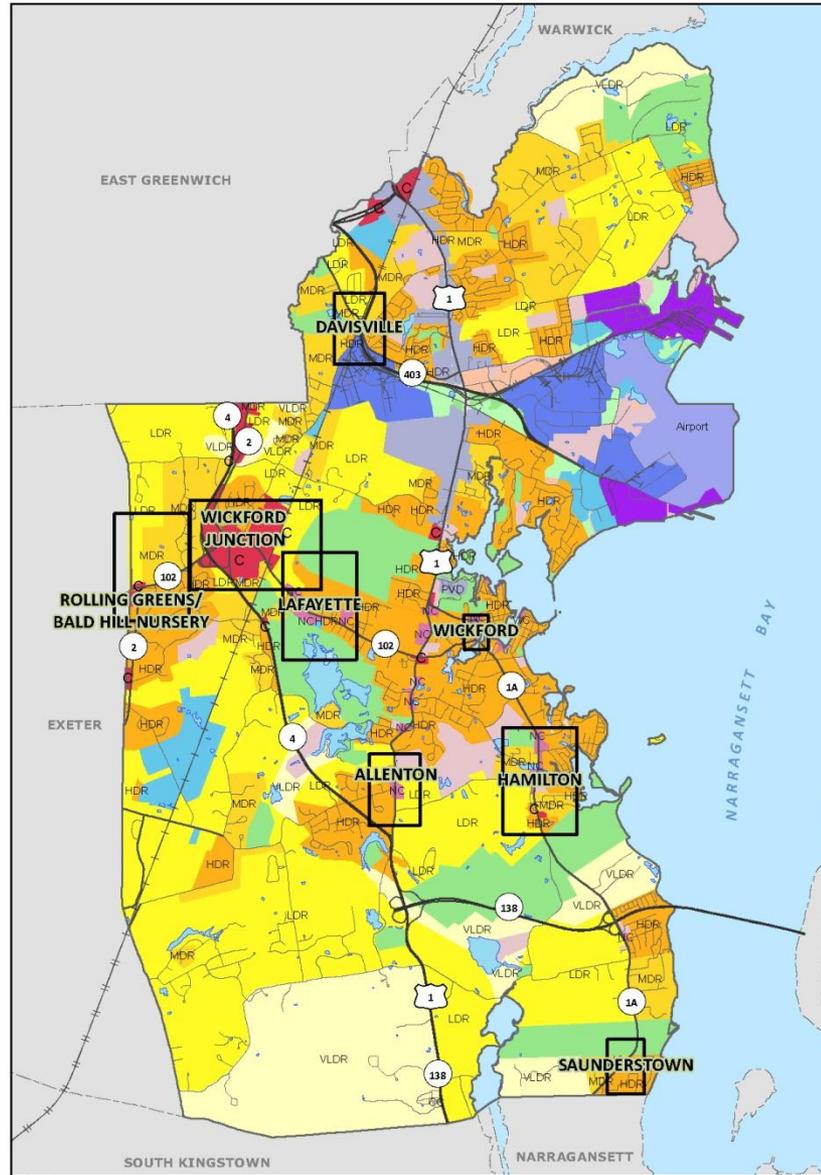
#### ***Villages***

##### Guiding Principles

In order to realize their full potential for quality of life, North Kingstown neighborhoods should be a collection of unique community assets that exemplify the following qualities:

- Safe for all residents,
- Offers economic diversity and opportunity,
- Supports social interaction and civic involvement,
- Provides recreation and education opportunities,
- Accessible by a network of varied multi-modal transportation alternatives, and
- Families are strengthened and youth are supported.





**Legend**

- Village Study Areas
- Railway
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Very Low Density Residential
- Planned Village District
- Neighborhood Commercial
- Commercial
- High Density Mixed Use
- Quonset Mixed Use
- Waterfront Commercial
- Waterfront Industrial
- Light Industrial
- General Industrial
- Public
- Open Space
- Airport
- Corporate Compound
- Quonset Future ROW

0 1 Mile

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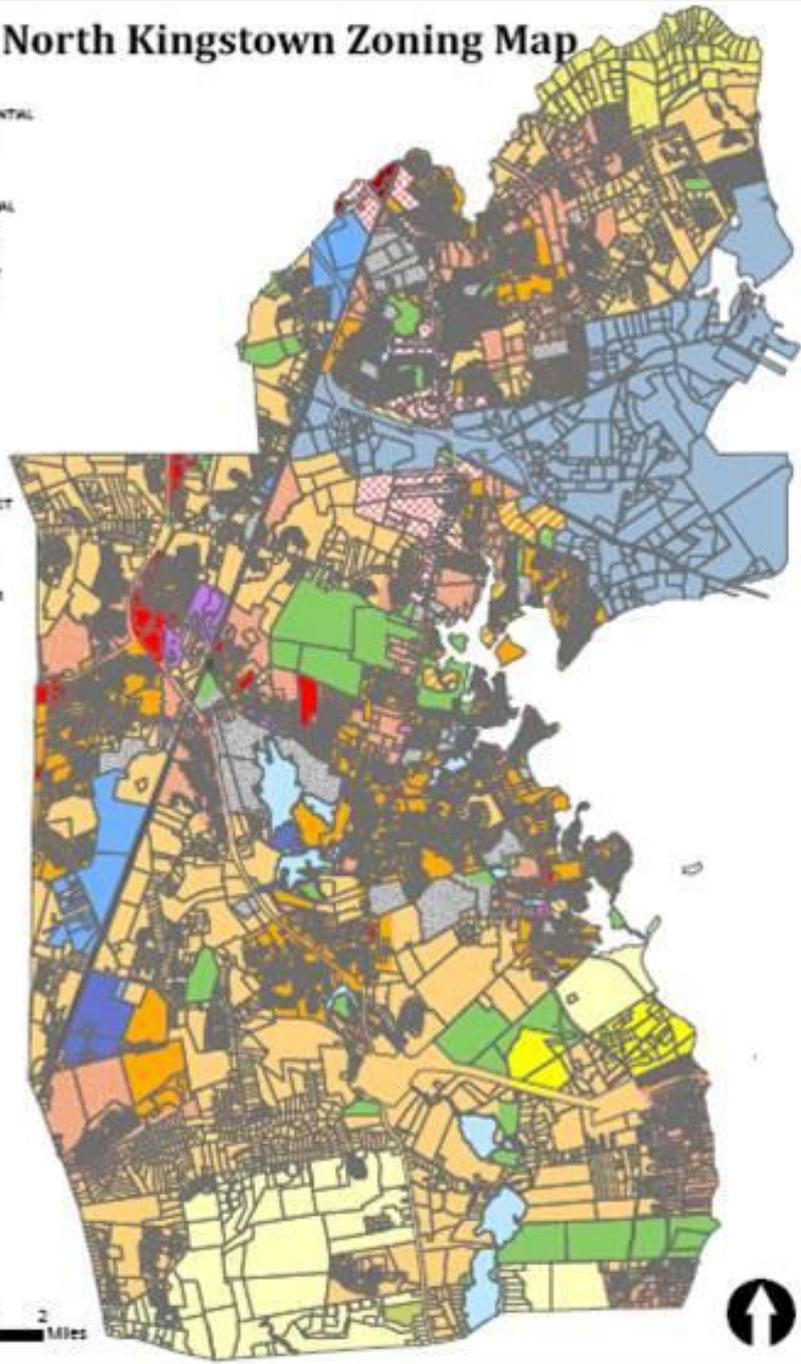
For general planning purposes only. Data sourced from Town of North Kingstown Planning & IT Departments and GIS: Pictometry Licensed Imagery (2008 - P1 09 13). This map is not intended as a site or survey plan.

Mapping and Planning Services  
MH 3/2011

NOTE: INCLUDES ALL AMENDMENTS AS OF MARCH 1, 2011

# North Kingstown Zoning Map

- Parish
- ZONING**
- VERY LOW DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- RURAL RESIDENTIAL
- VILLAGE RESIDENTIAL
- NEIGHBORHOOD RESIDENTIAL
- POWAC POINT RESIDENTIAL
- MULTI-FAMILY RESIDENTIAL
- PLANNED VILLAGE DISTRICT
- NEIGHBORHOOD BUSINESS
- GENERAL BUSINESS
- HEAVY BUSINESS
- CORPORATE COMPOUND
- GENERAL INDUSTRIAL
- INSTITUTIONAL/OFFICE
- LIGHT INDUSTRIAL
- OPEN SPACE
- PUBLIC LAND
- PLANNED BUSINESS DISTRICT
- POST ROAD DISTRICT
- QUONSET BUSINESS PARK
- WATERFRONT BUSINESS
- WICKFORD VILLAGE CENTER
- Highway
- Water



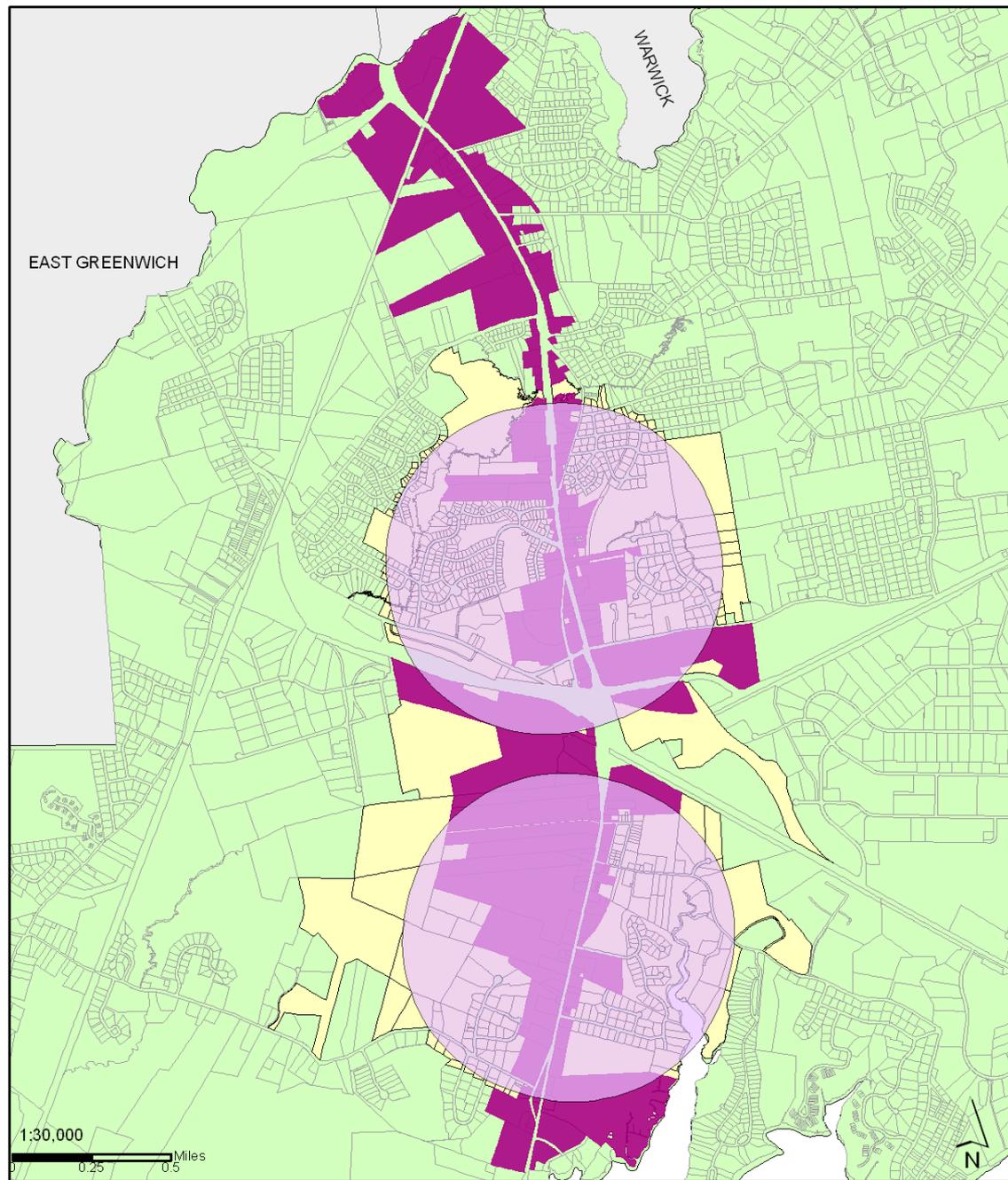
0 0.25 0.5 1 1.5 2 Miles



# Growth Centers Post Road

## Legend

-  Post Road Corridor
-  Village Center Parcels
-  Potential Village Growth Center 1/2 Mile Radius



# Phased Sewer Districts

Sewer District

Phase



South - Phase 1



South - Phase 2



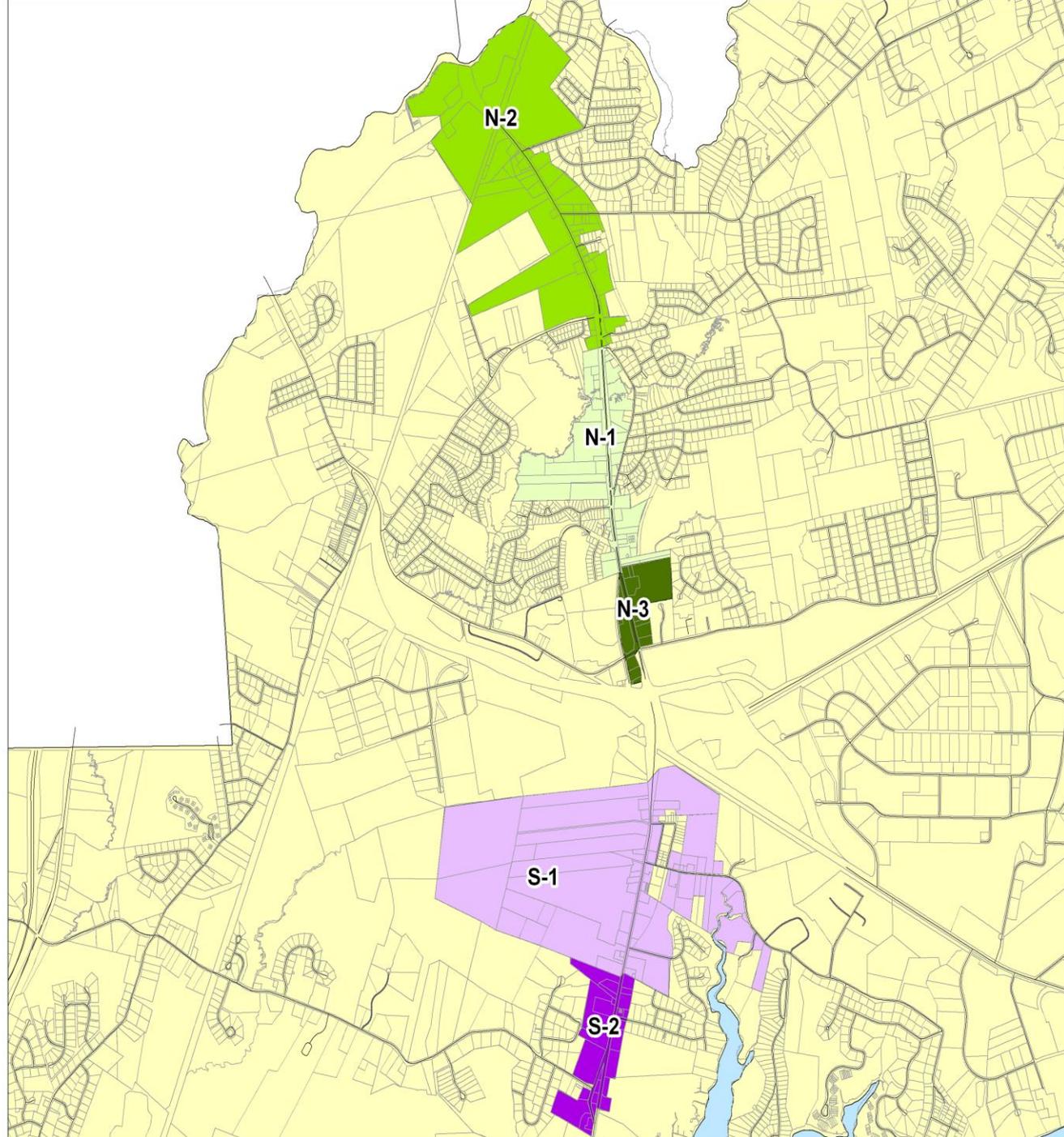
North - Phase 1



North - Phase 2



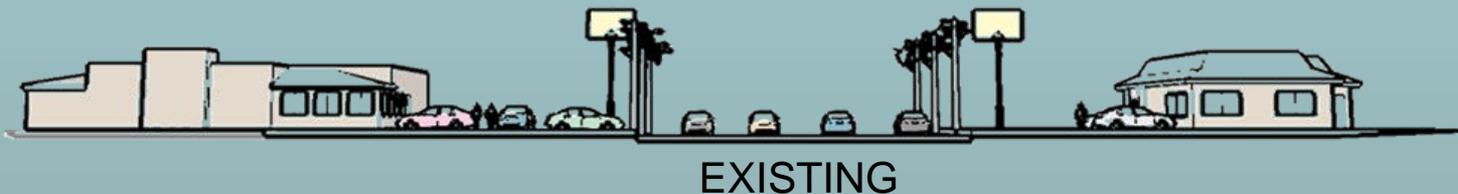
North - Phase 3



0 0.25 0.5 Miles

# Goals for Post Road

- Smart growth planning approach to redevelopment
- Concentrate development in areas already serviced by infrastructure
- Promote pedestrian oriented design
- Buffer parking and reduce expansive paved areas



# TDR

## The Concept

Owner of "sending" parcel sells development rights in exchange for permanent conservation easement.

receiving area



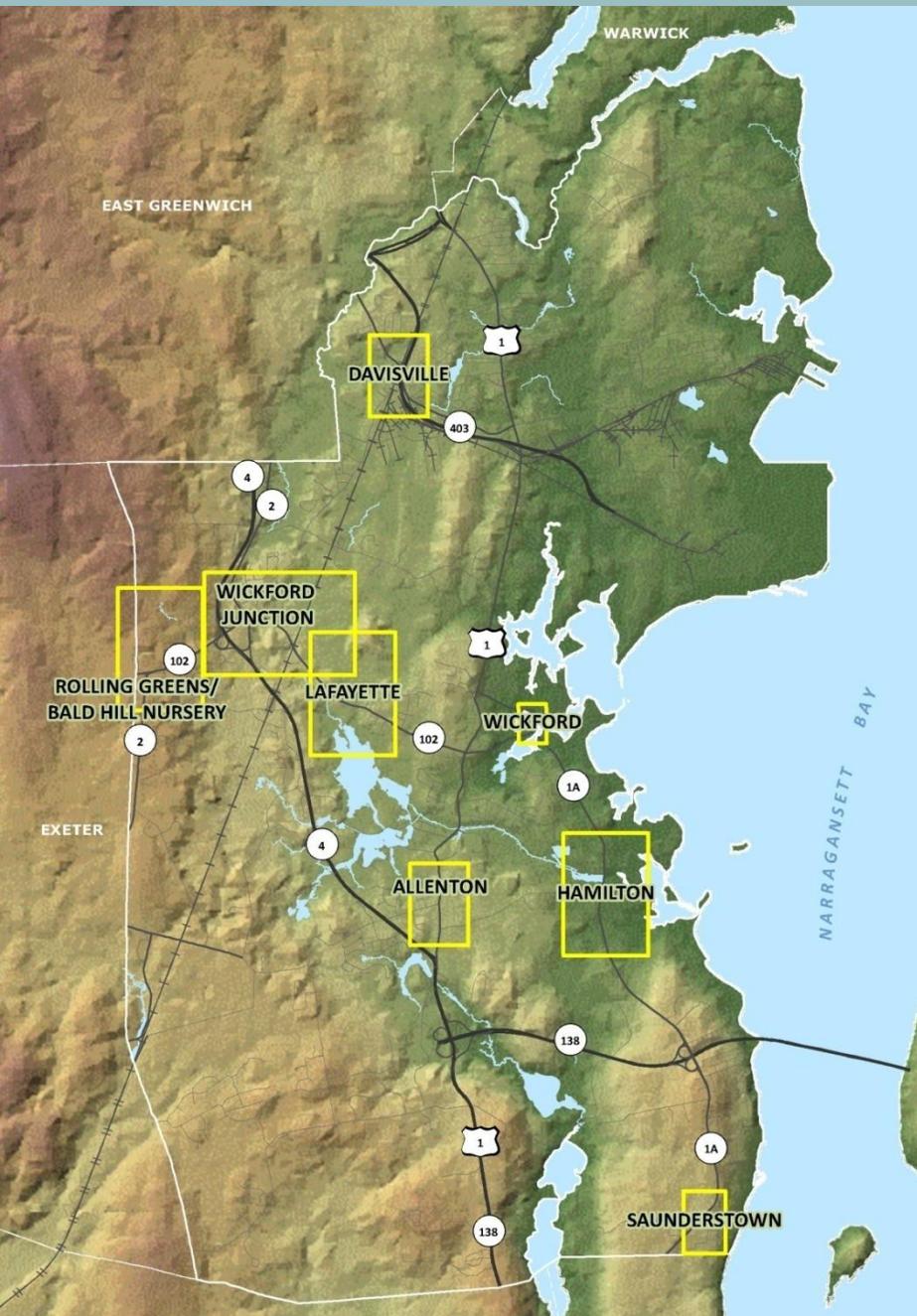
sending area



Owner of "receiving" parcel buys development rights to build at densities higher than allowed under base zoning.



**Post Road and Stony Lane**



# Other Areas for Growth?

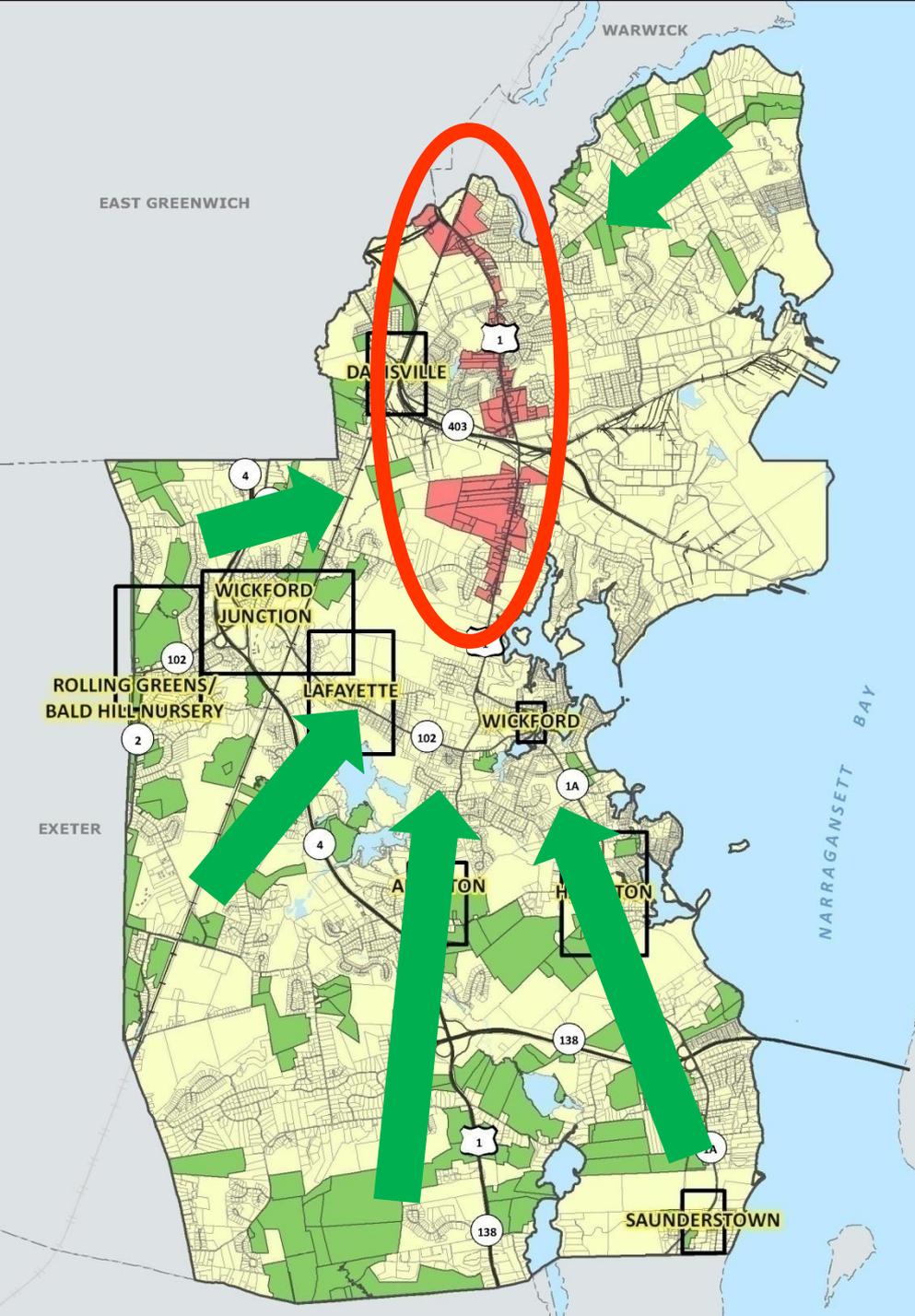
- Historic Villages
- Emerging Villages

# Villages and Neighborhoods



# Where can this happen today?

- **Sending Area:**  
**Sending Area Overlay District**
- **Receiving Area:**  
**Post Road District**



# Existing and Emerging Villages and Growth Areas

**Allenton**



**Hamilton**



**Lafayette**



**Wickford Junction**



# The Wickford Junction Train Station





# Today's Discussion

## Planning for sustainable future development in light of water quantity restrictions

- What are the constraints and opportunities for future development?
- What does the future of the town look like?
- What is needed to make this town a great or better place or to keep the great things that we have now?
  - ✓Comprehensive Plan sets and directs these policies
  - ✓Zoning implements these policies

# Next Steps

- Direct growth and appropriate development patterns through Comprehensive Plan – Land Use 2025
- Address water use/allocation in the Comprehensive Plan
- Reconfigure Water Service Area
- Continue to work on re-writing the Groundwater Protection Plan (1991)
- Water use restrictions (potable) during peak times
- Keep looking for options



# Questions?

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**Town of North Kingstown, Rhode Island**

<http://www.northkingstown.org/departments/water>  
[www.northkingstown.org/planningdept](http://www.northkingstown.org/planningdept)