

# **Water Quantity Planning for Future Development in North Kingstown Growth Centers**

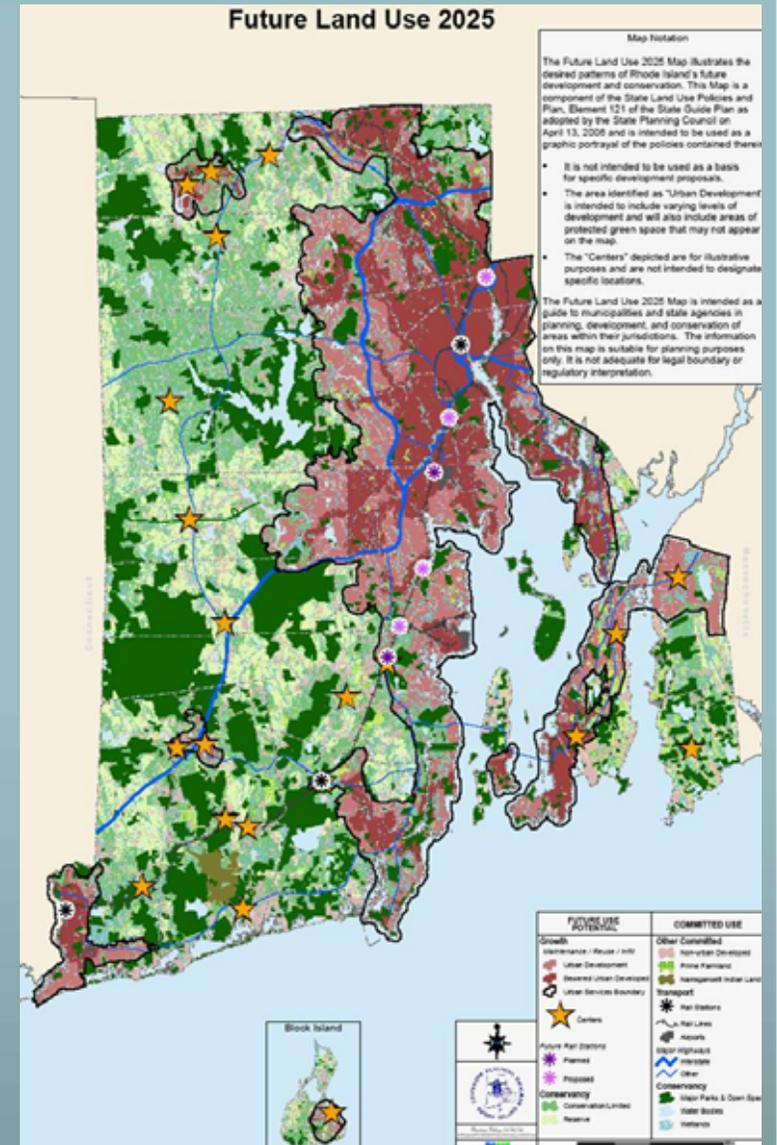
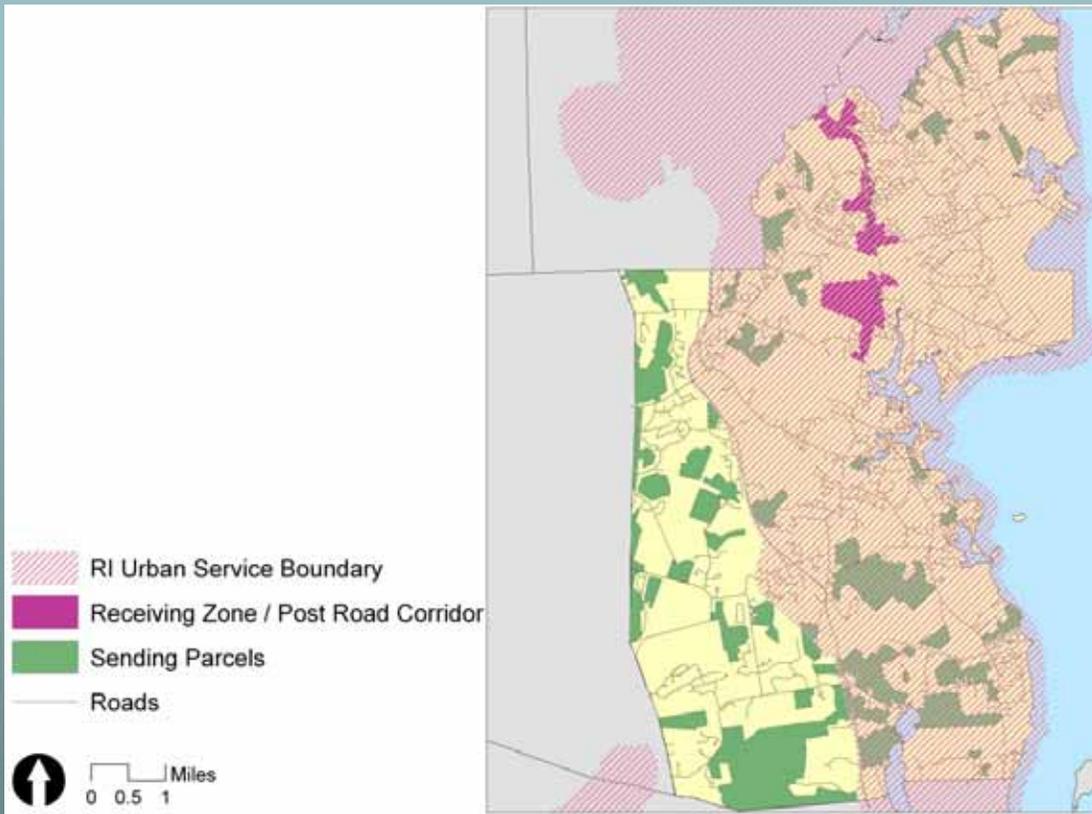
Jonathan Reiner, AICP  
Planning Director

North Kingstown, Rhode Island

March 9, 2013

# Land Use 2025

## State Land Use Policy Plan Urban Services Boundary



# Water Quality vs. Water Quantity

Why can't we just keep putting in more wells?

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

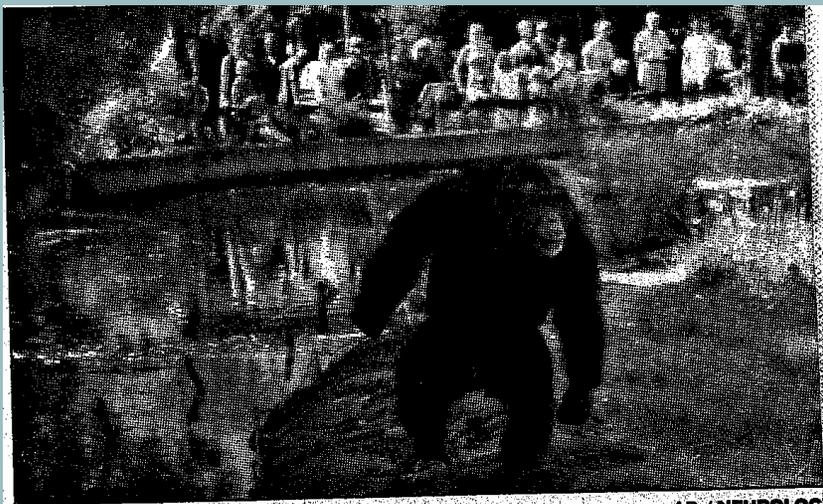
Do the Needs = Available Supply?

- Sewer
- Water

# Water Planning in North Kingstown

- North Kingstown has 3 groundwater aquifers that are all interrelated, known as the HAP; 11 groundwater 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 in 1998 to limit uncontrolled expansion of the system.
- Hydraulic modeling required for all water main extensions

What does all this  
Planning mumbo-  
jumbo mean to water  
suppliers anyway?



AP / NEUROLOG

Santino, shown in this undated photo, sometimes would throw rocks at visitors at the Furuvik zoo in Sweden.

## Chimp showed signs of planning ahead

Researchers report observing Santino gathering piles of rocks that he would later hurl at zoo visitors.

THE WASHINGTON POST

It's a little disappointing, but perhaps not surprising, that a newly documented example of planning ahead by our closest non-human relative involves laying up weapons.

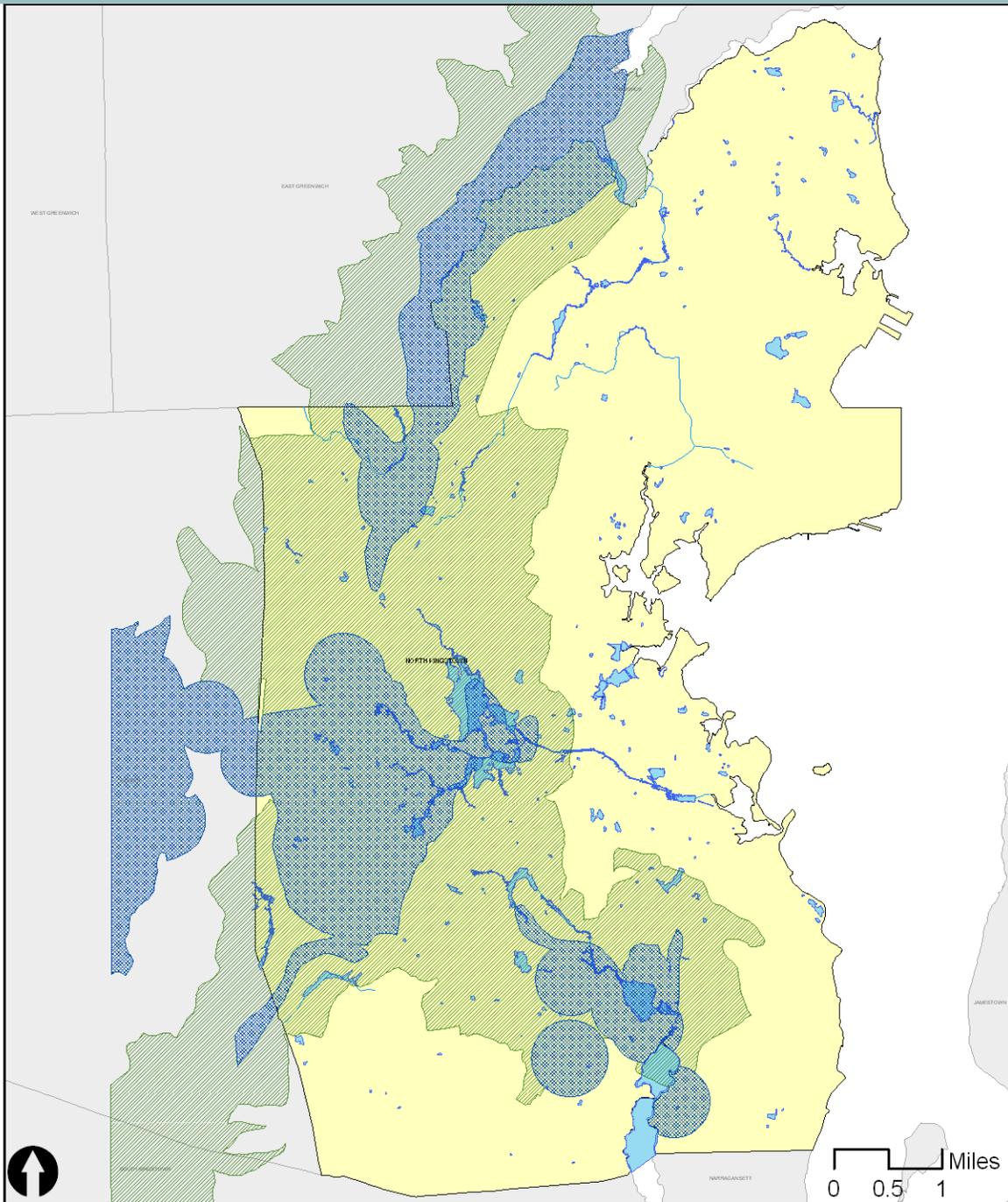
The chimpanzee, named "Santino," was born in a zoo in Munich in 1978 but has lived all but five years of his life at Furuvik Zoo, about 60 miles north of Stockholm.

He began throwing stones at age 16 when he became the sole — and therefore dominant — male in a group that included about a half-dozen females. None of the other chimpanzees, including a male that was in the group briefly, stored or threw

# Groundwater Protection Zones in North Kingstown

## Legend

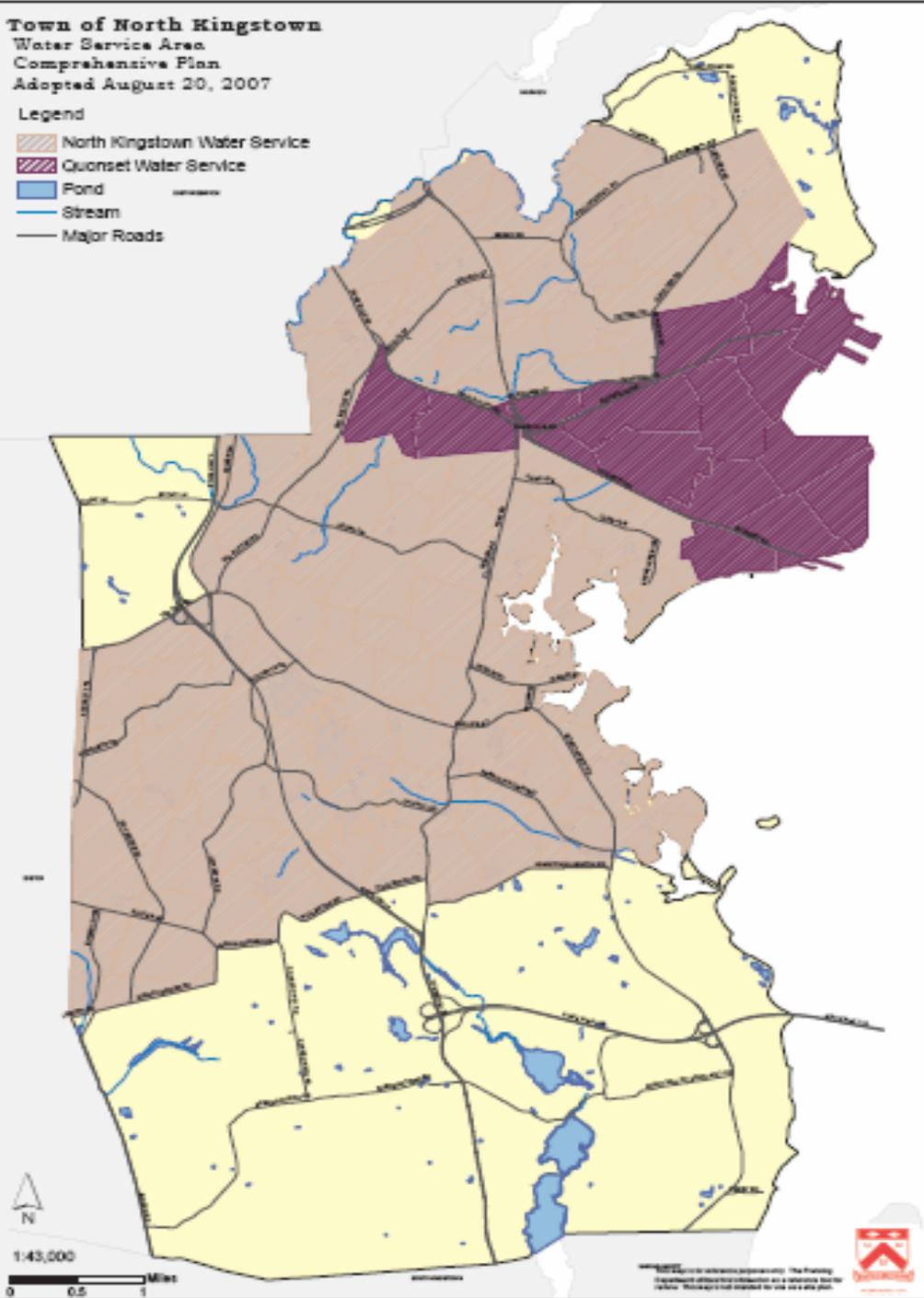
- Groundwater Protection Zone 1
- Groundwater Protection Zone 2
- Pond
- Stream



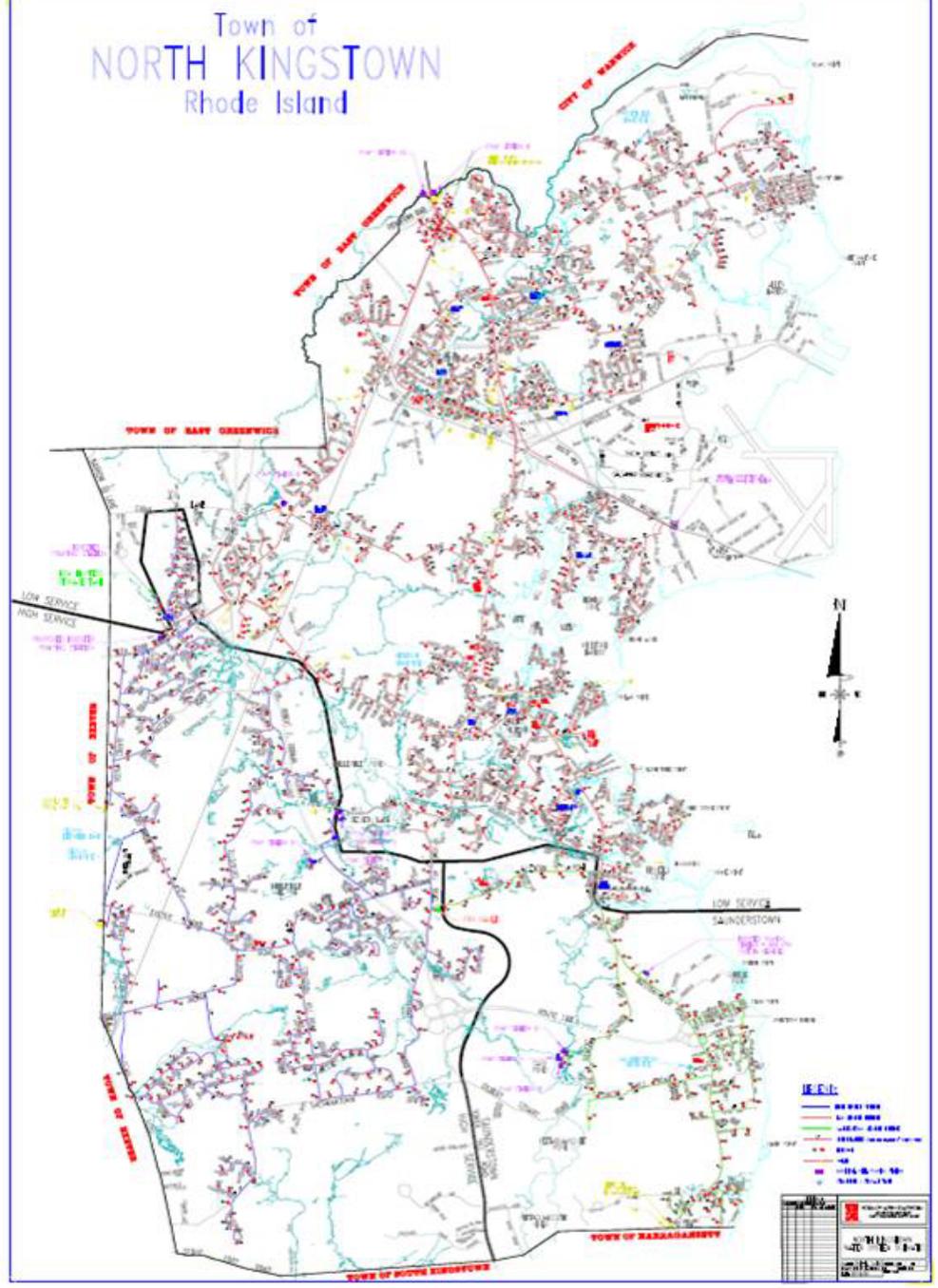
**Town of North Kingstown**  
Water Service Area  
Comprehensive Plan  
Adopted August 20, 2007

Legend

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



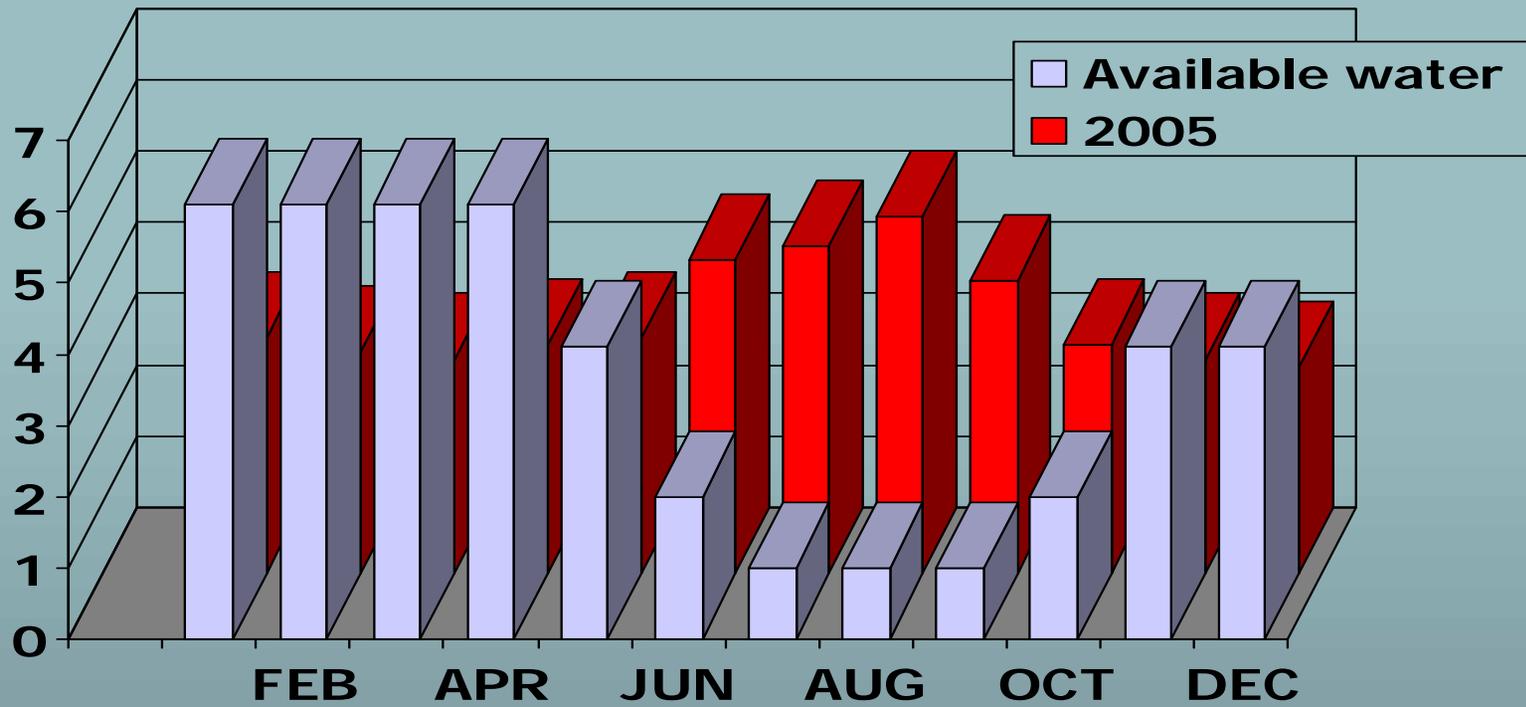
# Town of NORTH KINGSTOWN Rhode Island







# 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		

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ADD	+3.57
<b>MDD</b>	<b>-2.45</b>

# 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 )

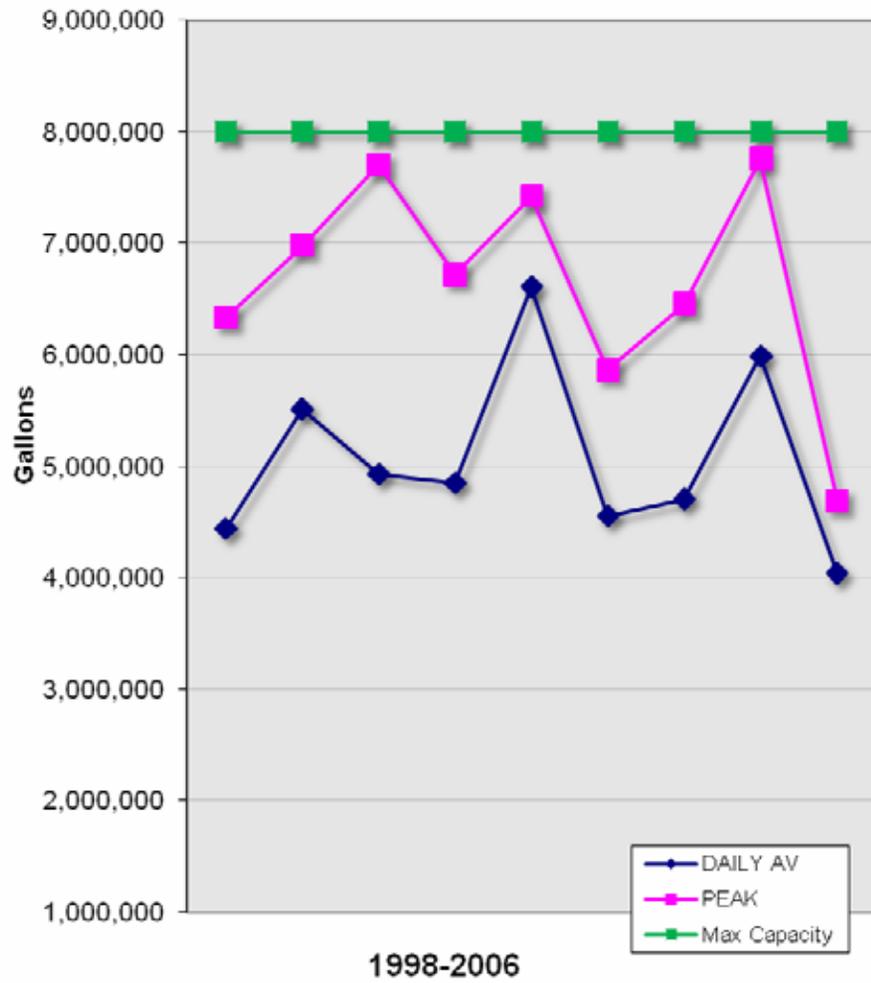
Summer Demand: 52 MGD (- 30 MGD)

# Water Peak Use

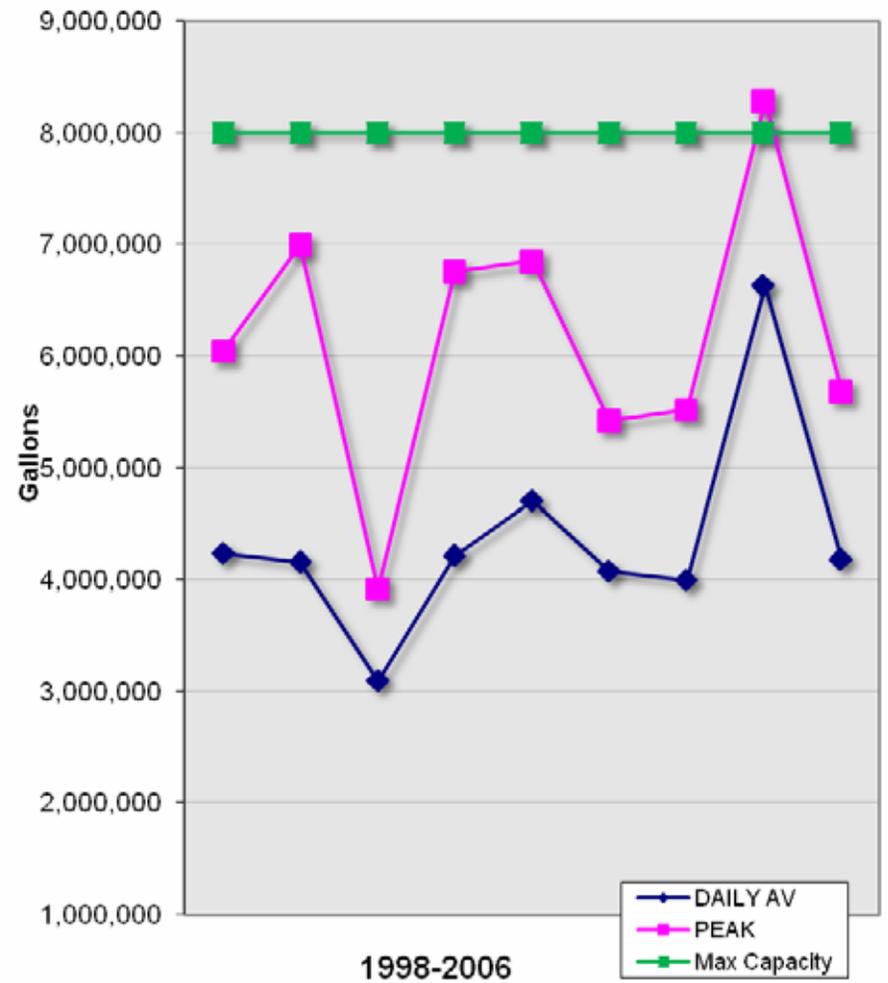
- How can we plan for future development if we do not have enough water year round?
- What are we to do and what can we plan for from a water peak usage standard?

# North Kingstown Water Monthly Pumping Data

## July Daily Average and Peak Usage

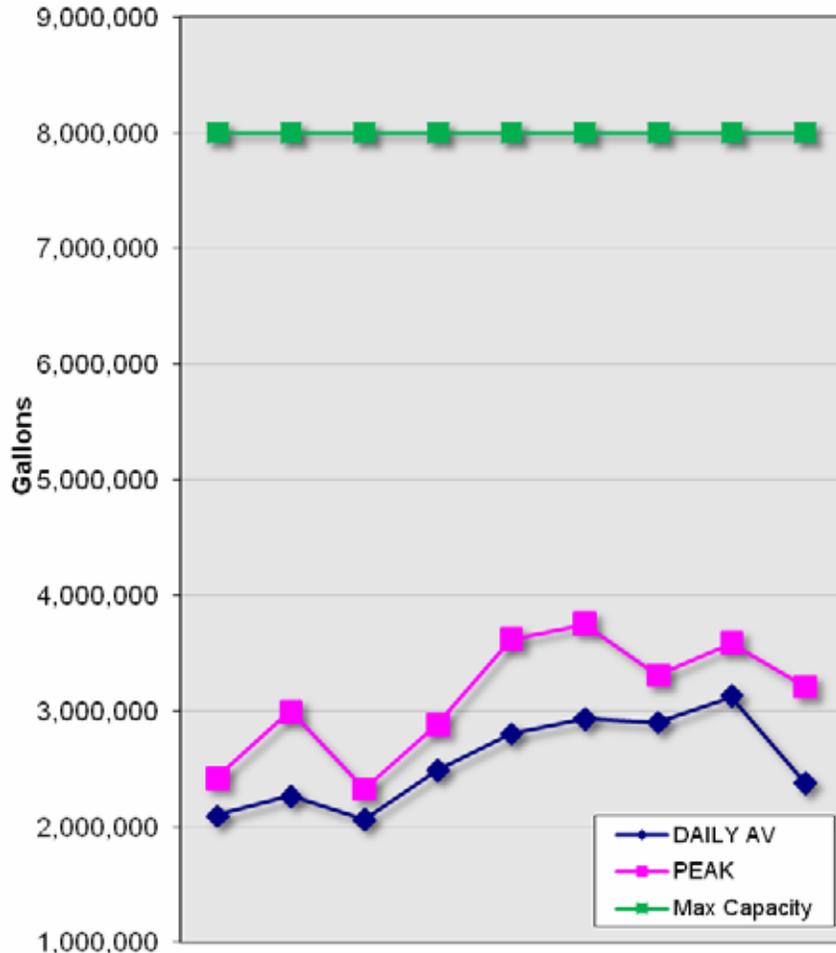


## August Daily Average and Peak Usage



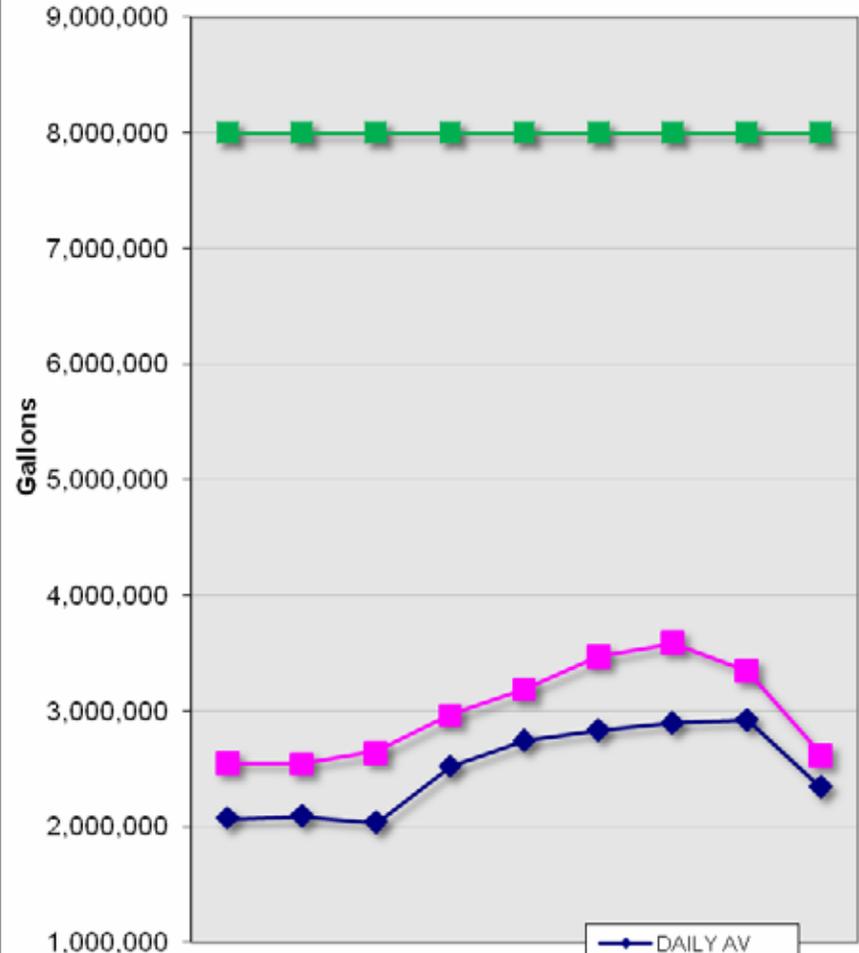
# North Kingstown Water Monthly Pumping Data

## November Daily Average and Peak Usage



1998-2006

## December Daily Average and Peak Usage



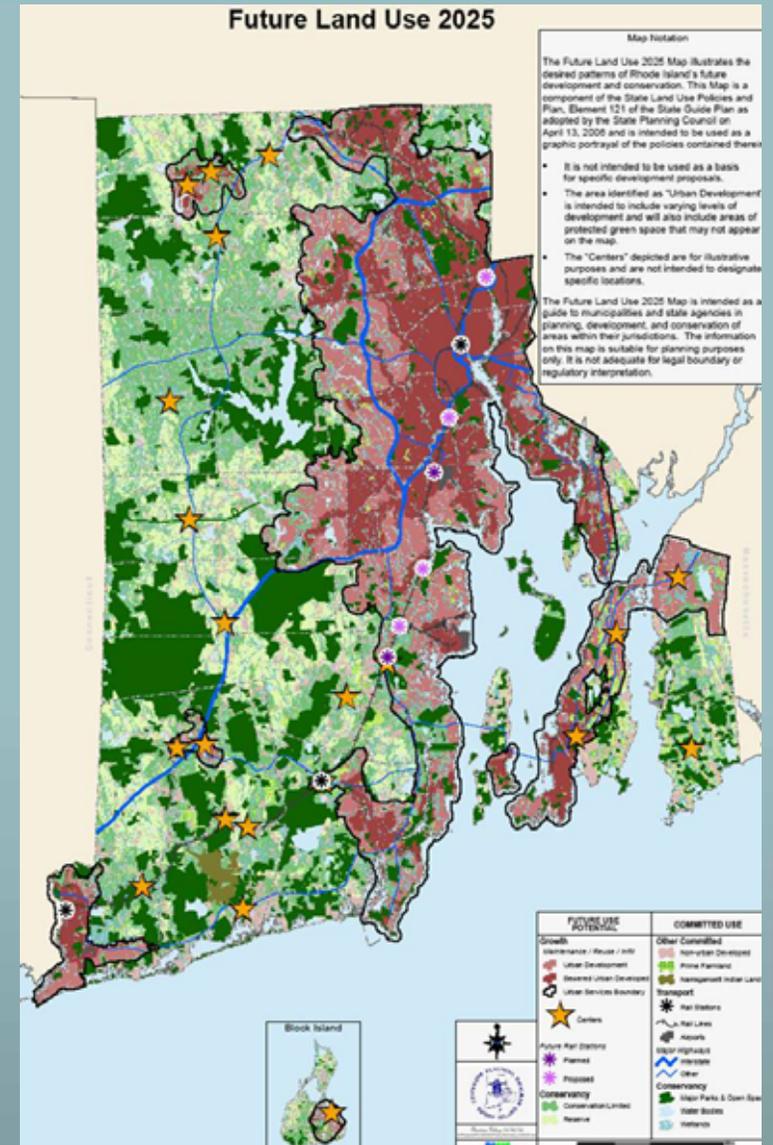
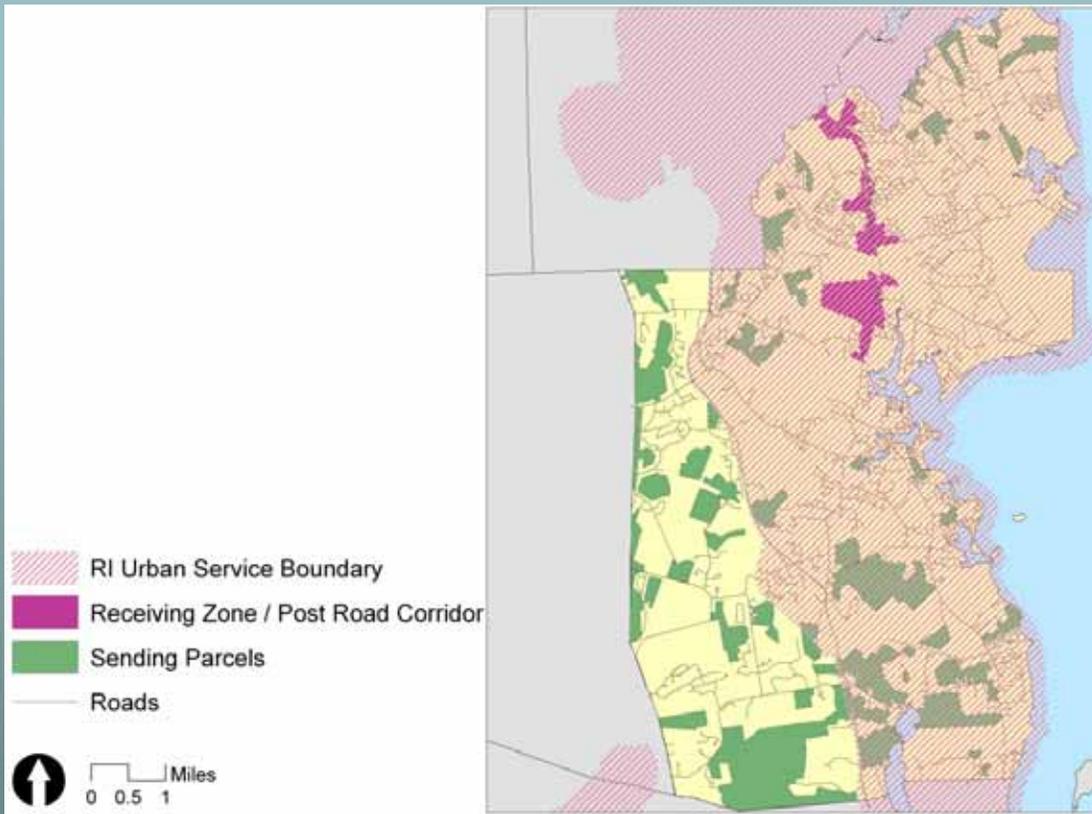
1998-2006

# 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

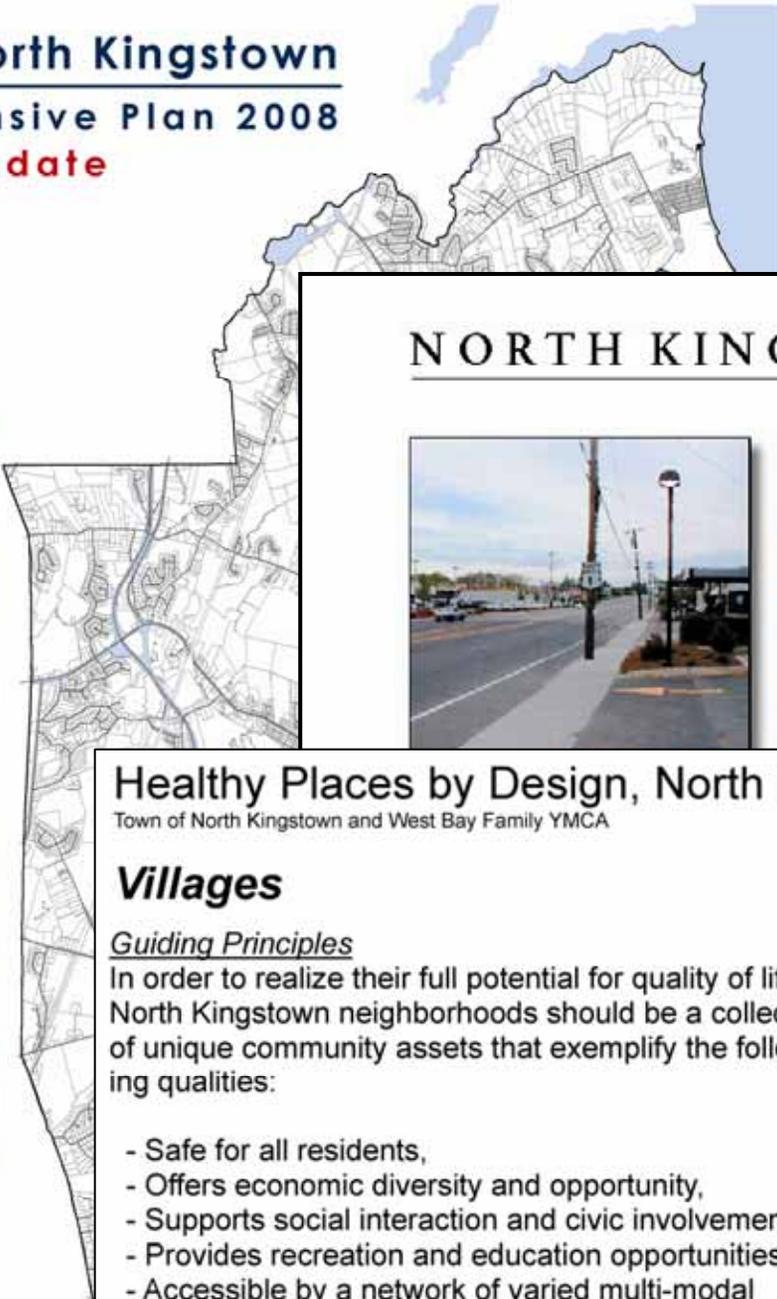
## State Land Use Policy Plan Urban Services Boundary



**Town of North Kingstown**  
**Comprehensive Plan 2008**  
**5 - Year Update**

# The Planning Framework

## 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

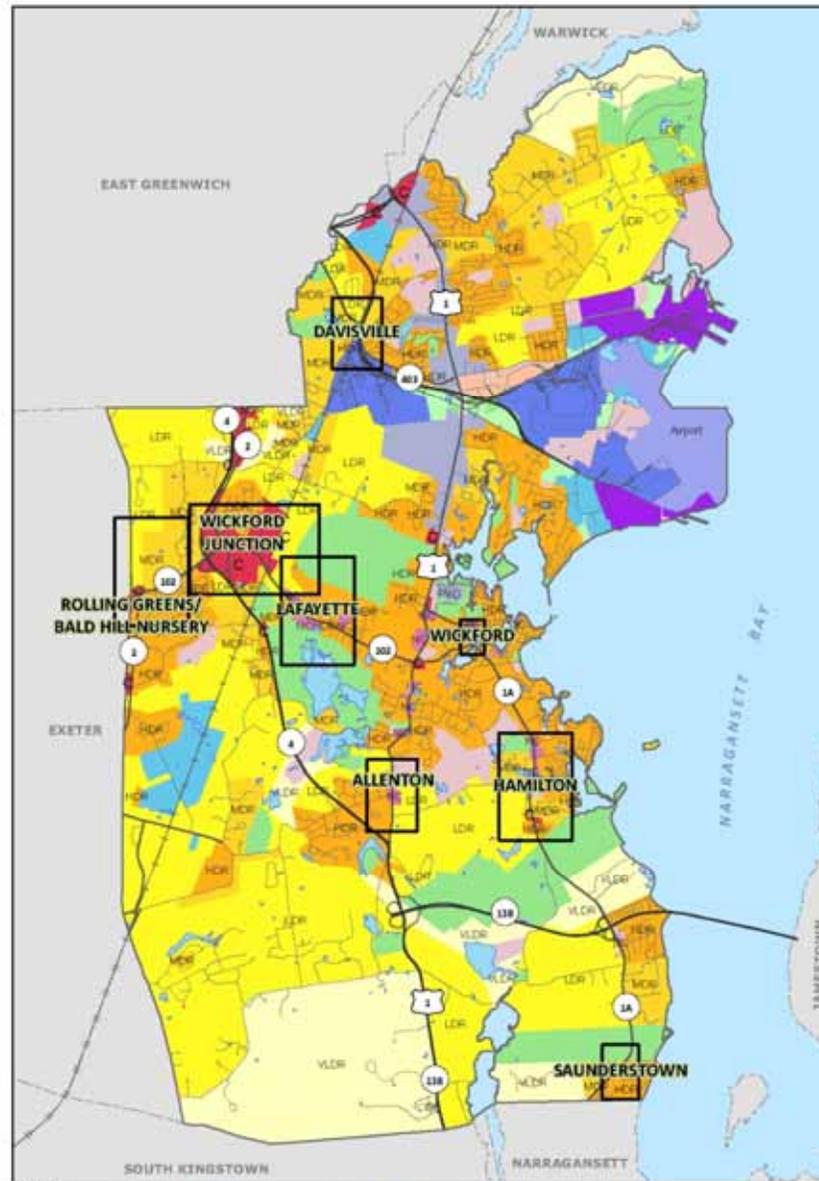
In order to realize their full potential for quality of life, North Kingstown neighborhoods should be a collection of unique community assets that exemplify the following qualities:

- 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.



Town of North Kingstown

Figure 2: Future Land Use Map



**Legend**

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

Scale: 0 1 Miles

North Arrow

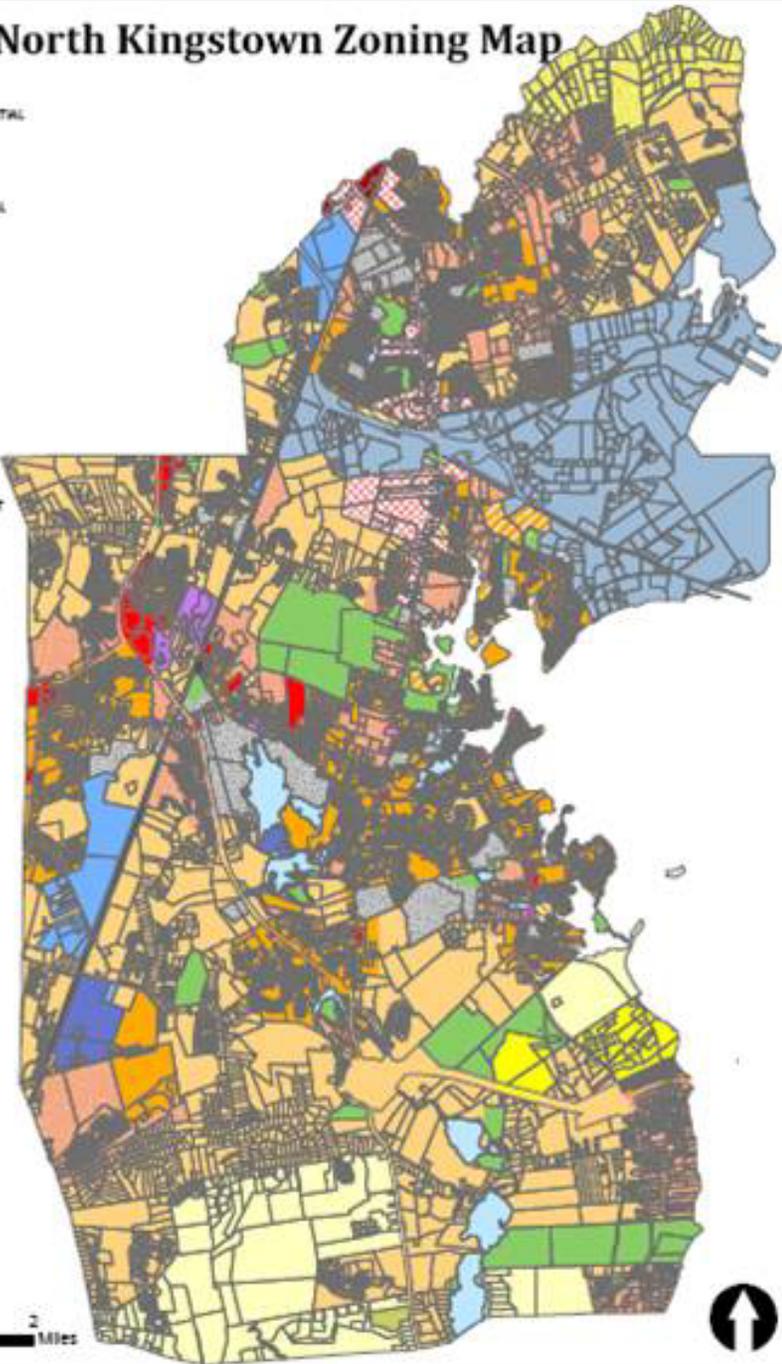
For general planning purposes only. Data sourced from:  
 Town of North Kingstown Planning & IT Department and  
 Rhode Island Department of Transportation (RIDOT) GIS data.  
 This map is not intended as a site or zoning plan.

Mapping and Planning Services  
 06/13/2011

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
- POWIC 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
- Roadway
- Water



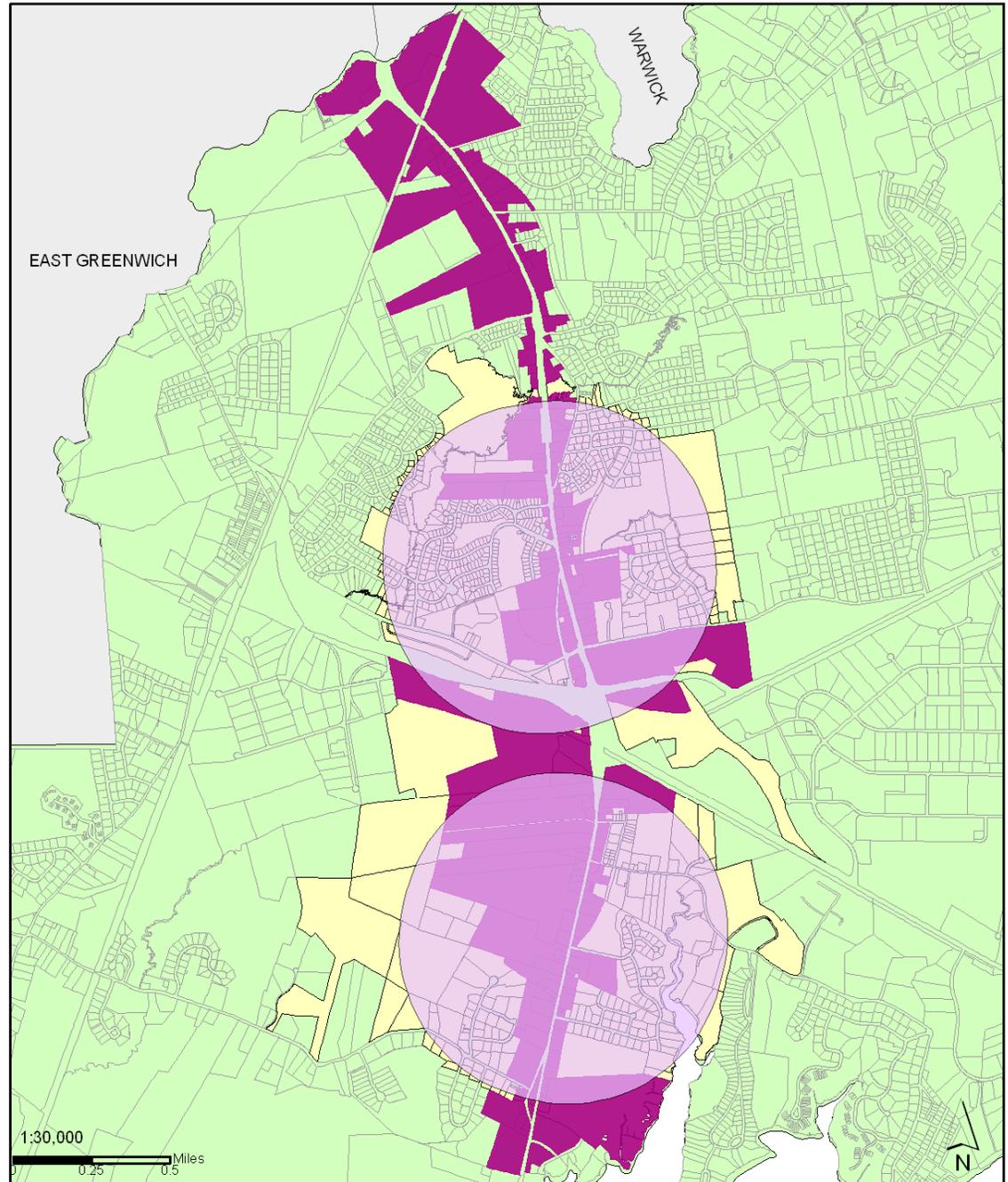
0 0.25 0.5 1 1.5 2 Miles



# Growth Centers Post Road

## Legend

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

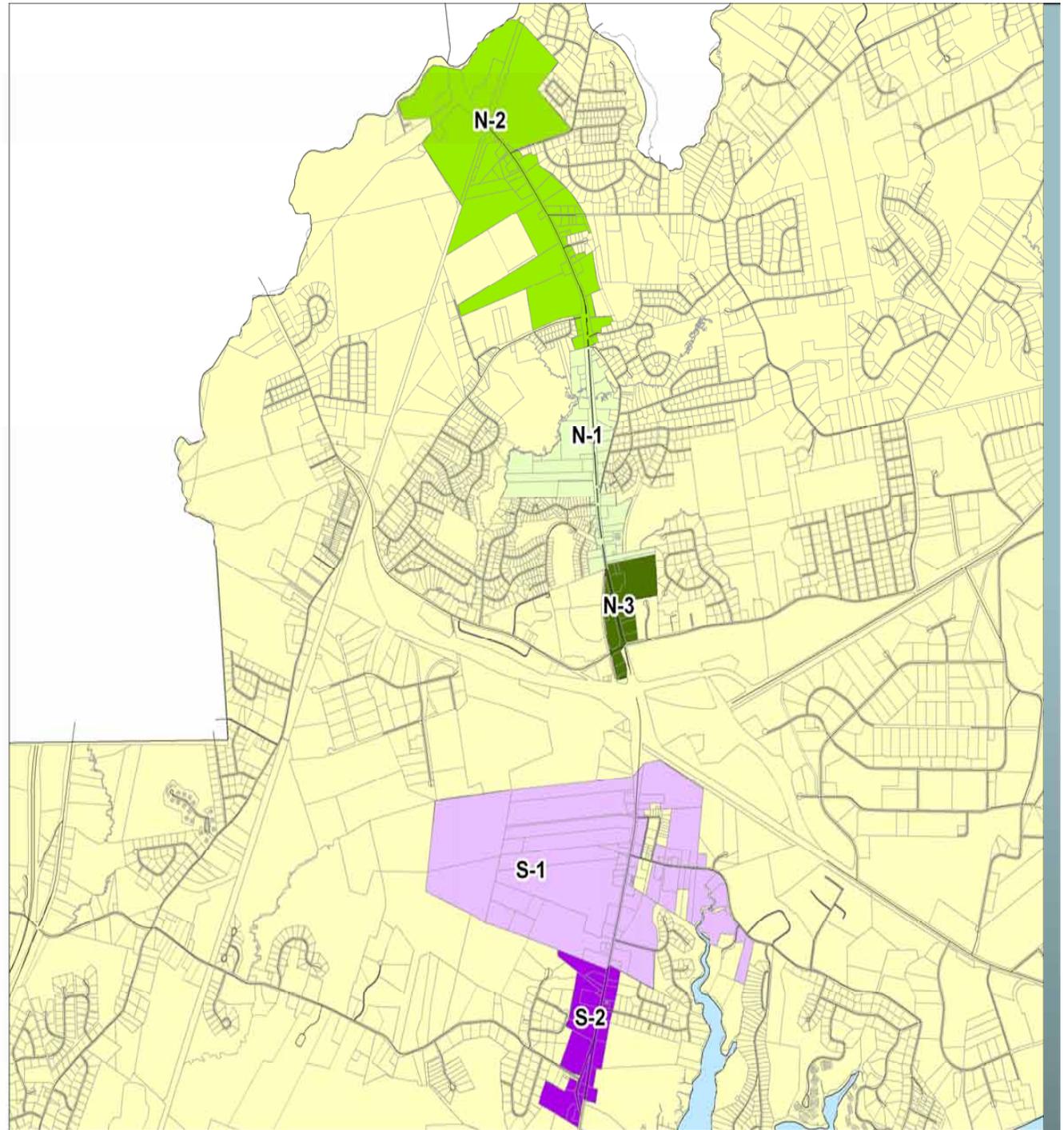
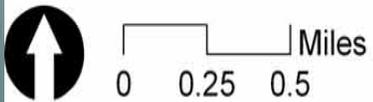


# Phased Sewer Districts

Sewer District

Phase

-  South - Phase 1
-  South - Phase 2
-  North - Phase 1
-  North - Phase 2
-  North - Phase 3



# 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



EXISTING



PROPOSED

# TDR

## The Concept

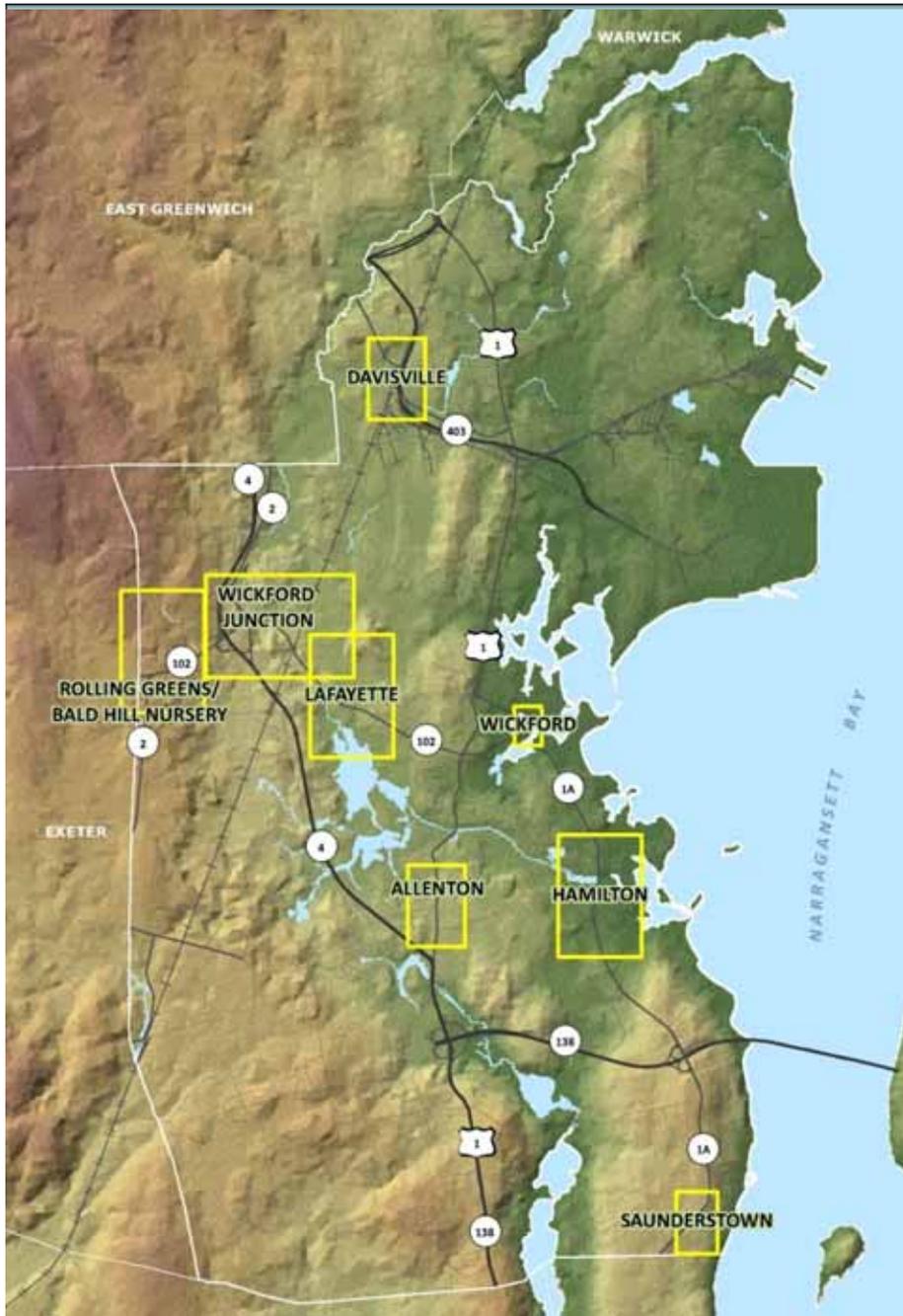
Owner of "sending" parcel sells development rights in exchange for permanent conservation easement.



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



**Post Road and Stony Lane**

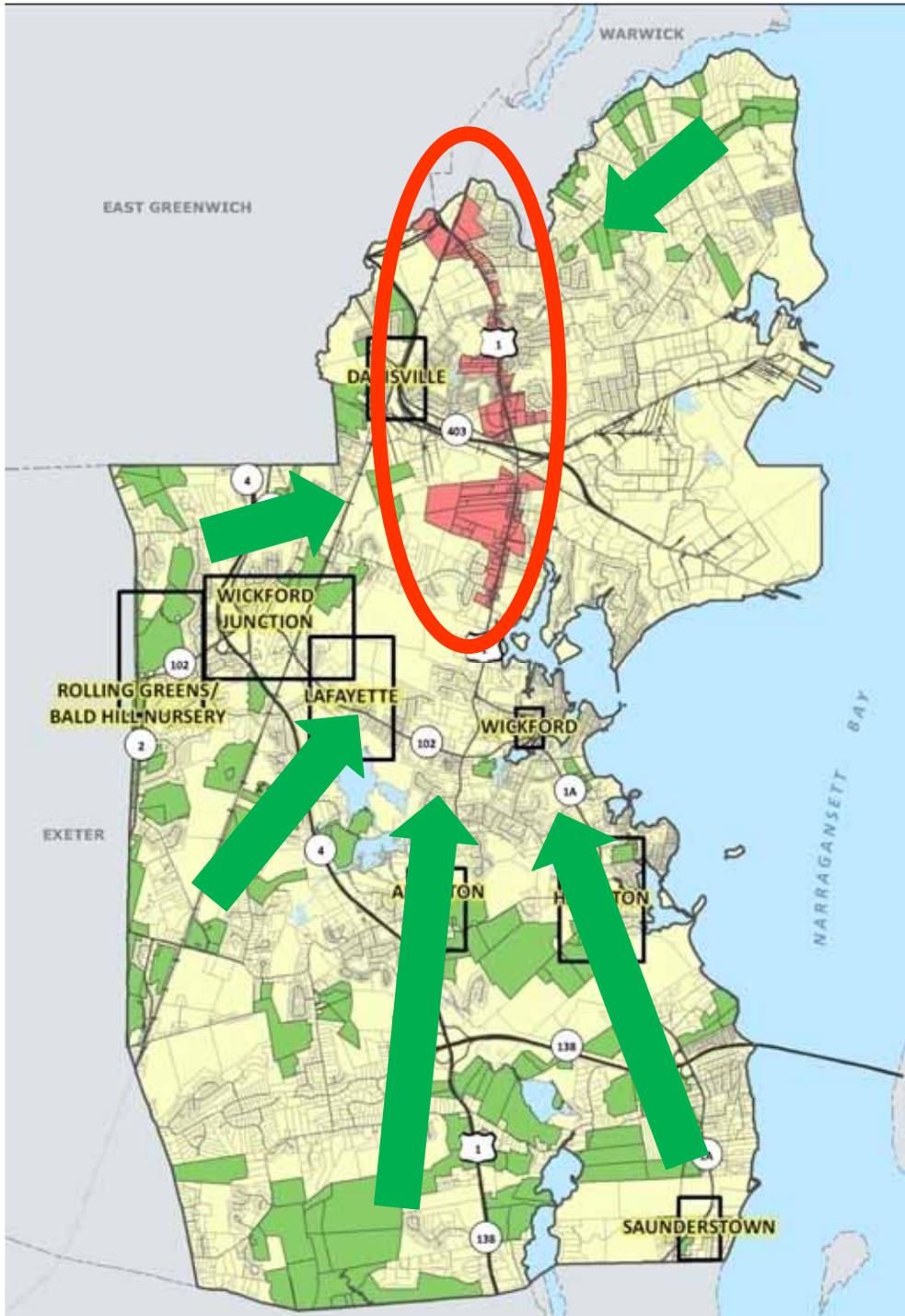


# Other Areas for Growth?

- 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

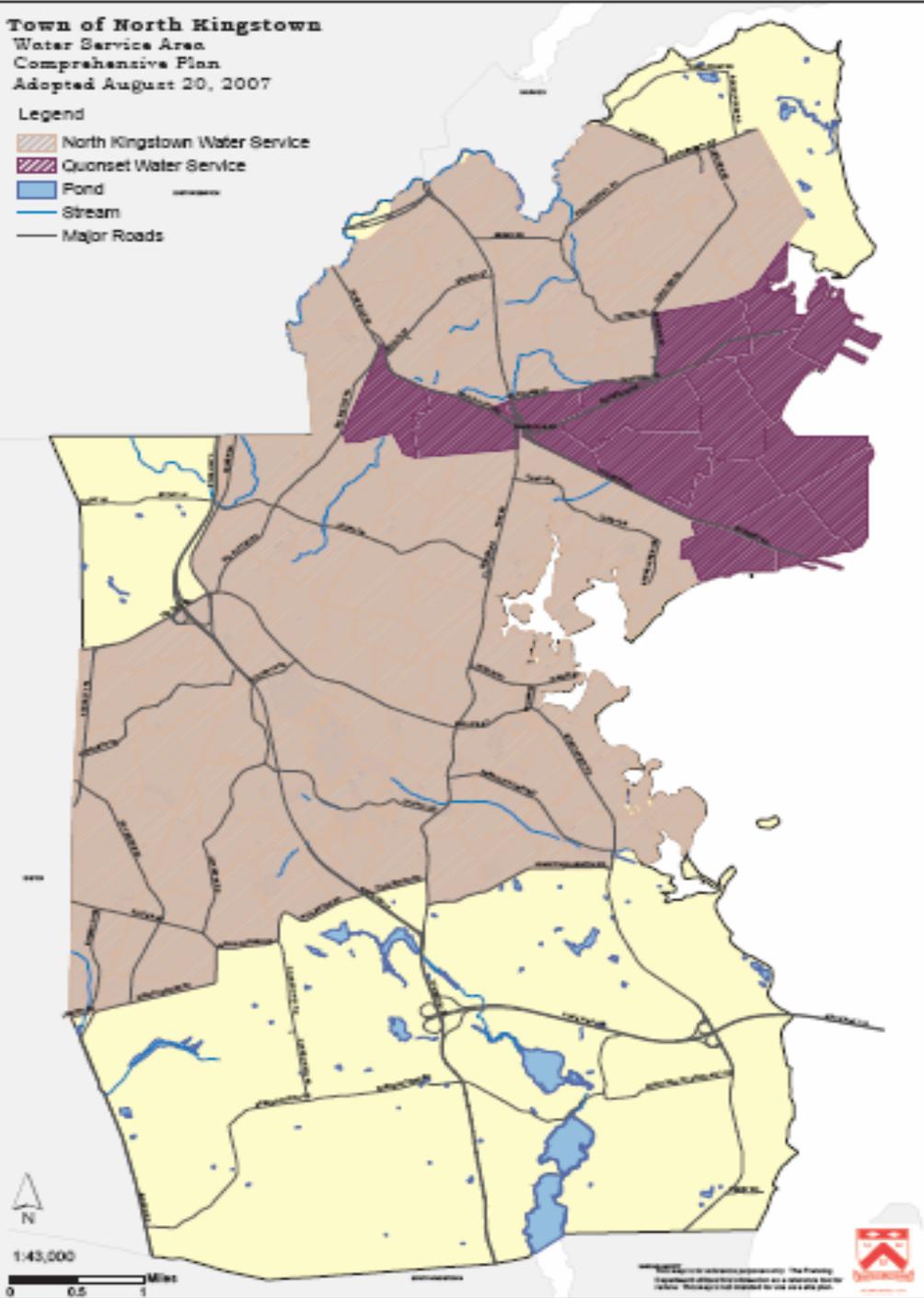
### Planning for sustainable future development in light of water quantity restrictions

- 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

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

Legend

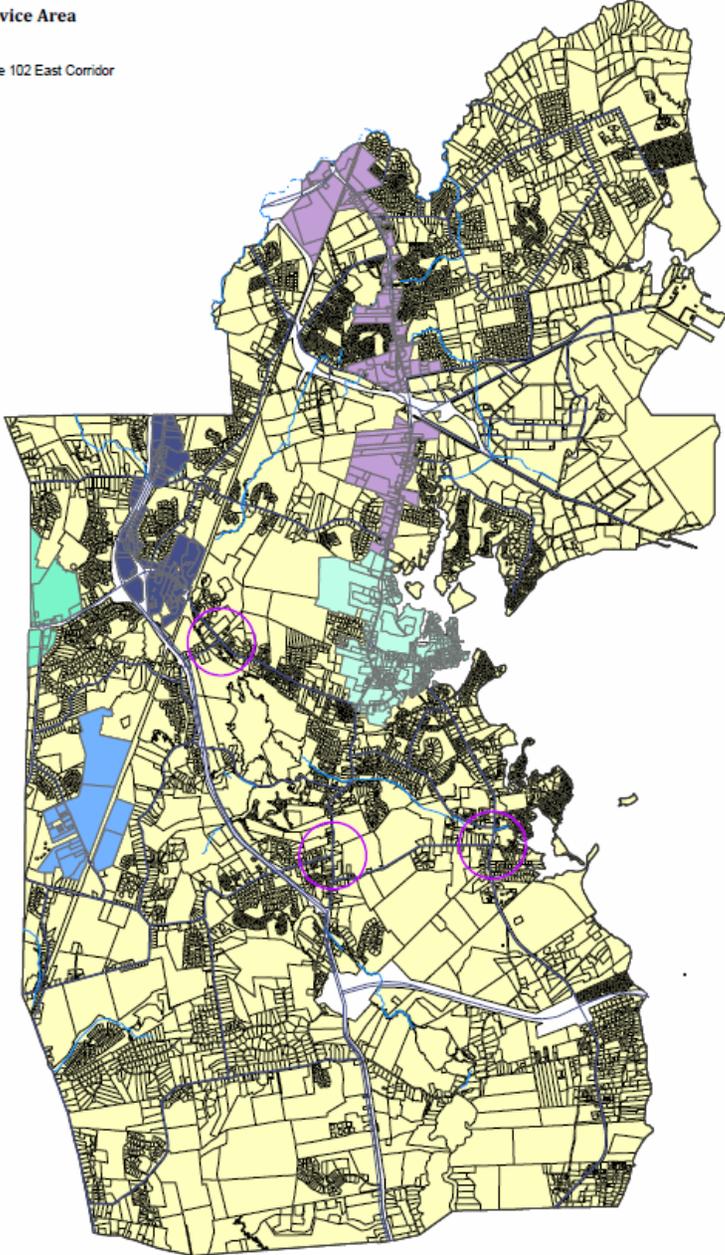
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# Proposed Water Service Area Revision

## Proposed Water Service Area

- Route 2 and 102 West
- Route 2 North and Route 102 East Corridor
- Wickford Village Area
- Light Industrial Lots
- Post Road
- Proposed boundaries to be determined by results of the village study



0 0.375 0.75 1.5 2.25 3 Miles

This map is for reference purposes only. The Planning Department utilizes this information as a reference tool for review. This map is not intended for use as a site plan.



# Next Steps

- Direct growth and appropriate development pattern through Comprehensive Plan – Land Use 2025
- Address water use/allocation in your Comprehensive Plan
- Reduction of Water Service Area
- Water use restrictions during peak times
  - Find comparisons from other fields- i.e. hurricane preparedness
- New wells/source development?
- Work with consultants to find solutions (HW and PARE)

# Next Steps continued.....

- Continue to work on re-writing the Groundwater Protection Plan (1991)
- Work with State and local partners
- Educate the public on the options
- Additional steps in the inclining block rate price
- Keep looking for options!

# Accomplishments and Next Steps

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



# Questions?

**Jonathan Reiner, AICP**

**Planning Director**

[jreiner@northkingstown.org](mailto:jreiner@northkingstown.org)

**Town of North Kingstown, Rhode Island**

[\*\*http://www.northkingstown.org/departments/water\*\*](http://www.northkingstown.org/departments/water)

[\*\*www.northkingstown.org/planningdept\*\*](http://www.northkingstown.org/planningdept)