



# Town of Atlantic Beach

## Wastewater

### Master Planning Study

### Preliminary Engineering Report

February 20, 2007

Presentation to Town Council





## Presentation Agenda

- Background information
- Existing wastewater systems
- Wastewater flow projections
- Collection system alternatives
- Treatment system alternatives
- Effluent disposal
- Costs & Funding







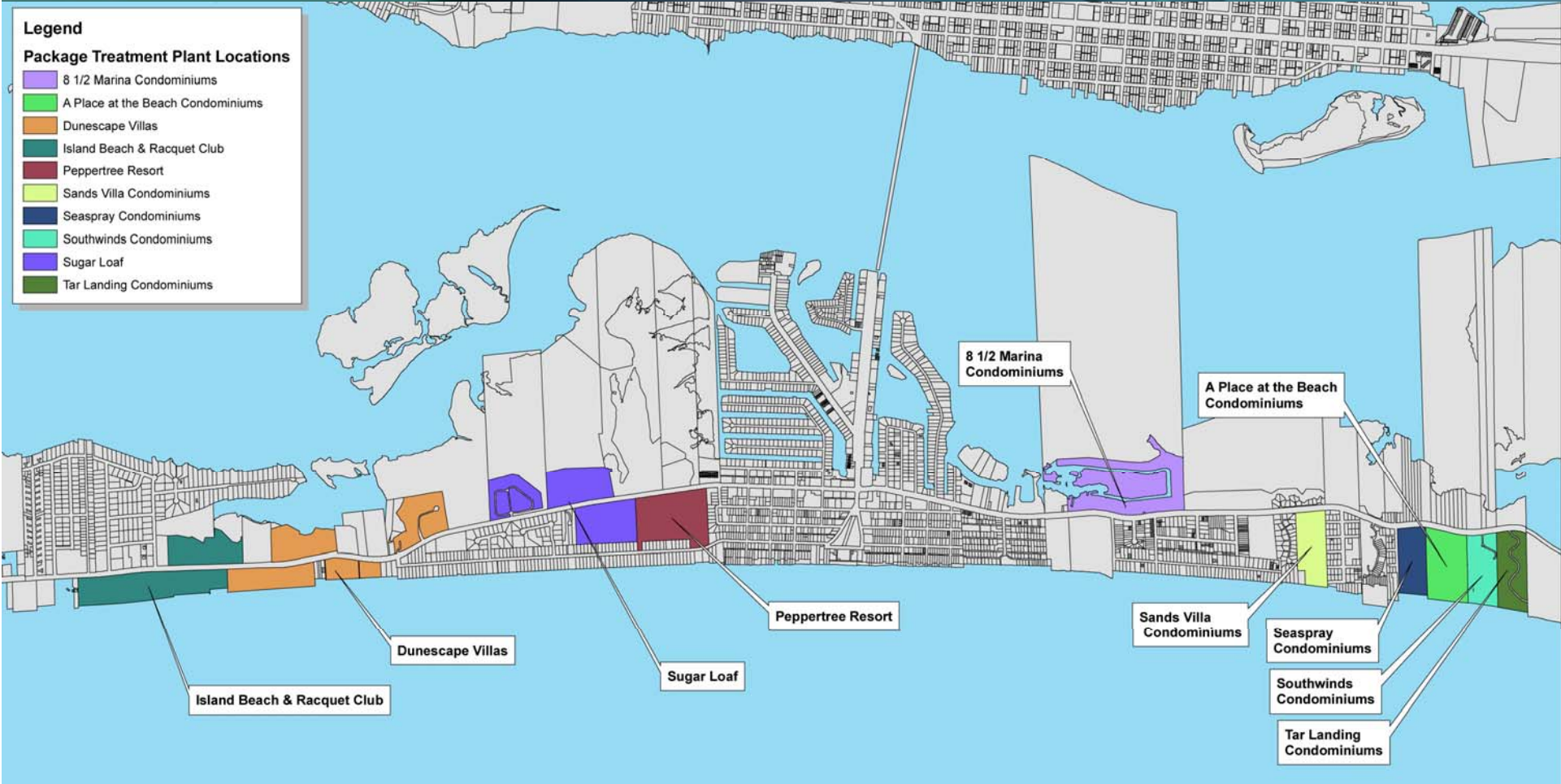
## Background Information

1. State regulations prohibit additional discharges of stormwater to Bogue Sound and the Atlantic Ocean
2. Not advisable for stormwater to continue to mix with wastewater (septic tank leachate)
3. The Town can not address stormwater flooding without first addressing septic system problems
4. Residents support a central wastewater system by a margin of 2 to 1





- Legend**
- Package Treatment Plant Locations**
- 8 1/2 Marina Condominiums
  - A Place at the Beach Condominiums
  - Dunescape Villas
  - Island Beach & Racquet Club
  - Peppertree Resort
  - Sands Villa Condominiums
  - Seaspray Condominiums
  - Southwinds Condominiums
  - Sugar Loaf
  - Tar Landing Condominiums

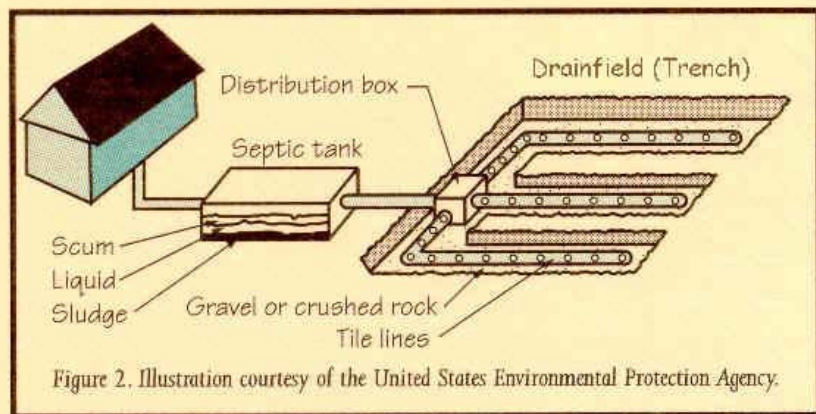


# Private WW Treatment Plants

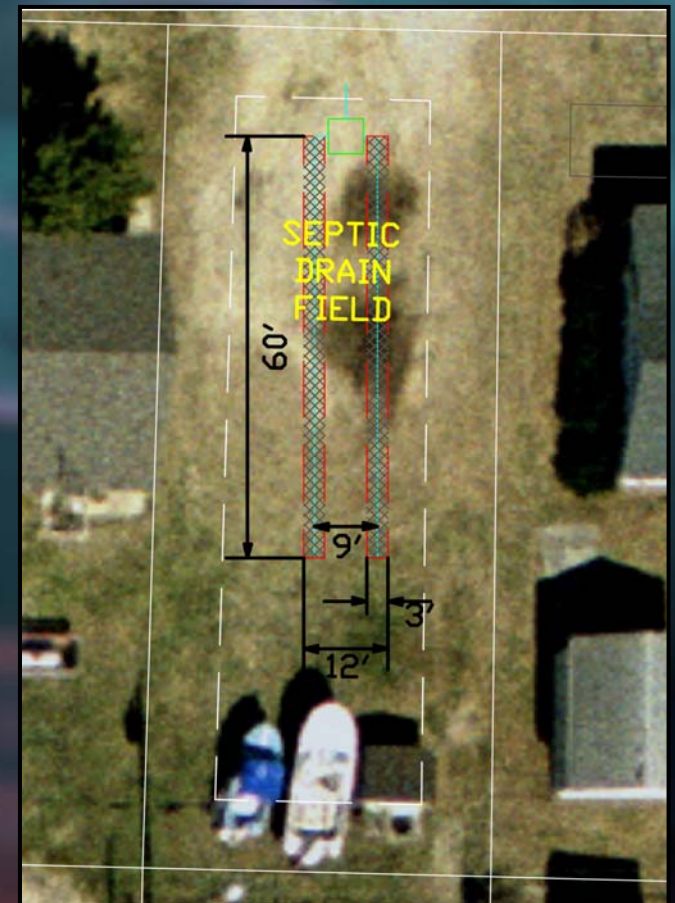




# Typical Septic Tank and Drainfield System



Schematic of a Drainfield



## Required Set-backs:

Coastal waters = 50 feet

Property line = 10 feet

Homes = 5 feet

## Current Drainfield Area Requirement:

3 Bedroom House = 720 sf + repair area





## Lot Evaluation Results for a 3 Bedroom Home on Best Soils

Area required for a septic drain field  
(per state requirements) **720 sf**

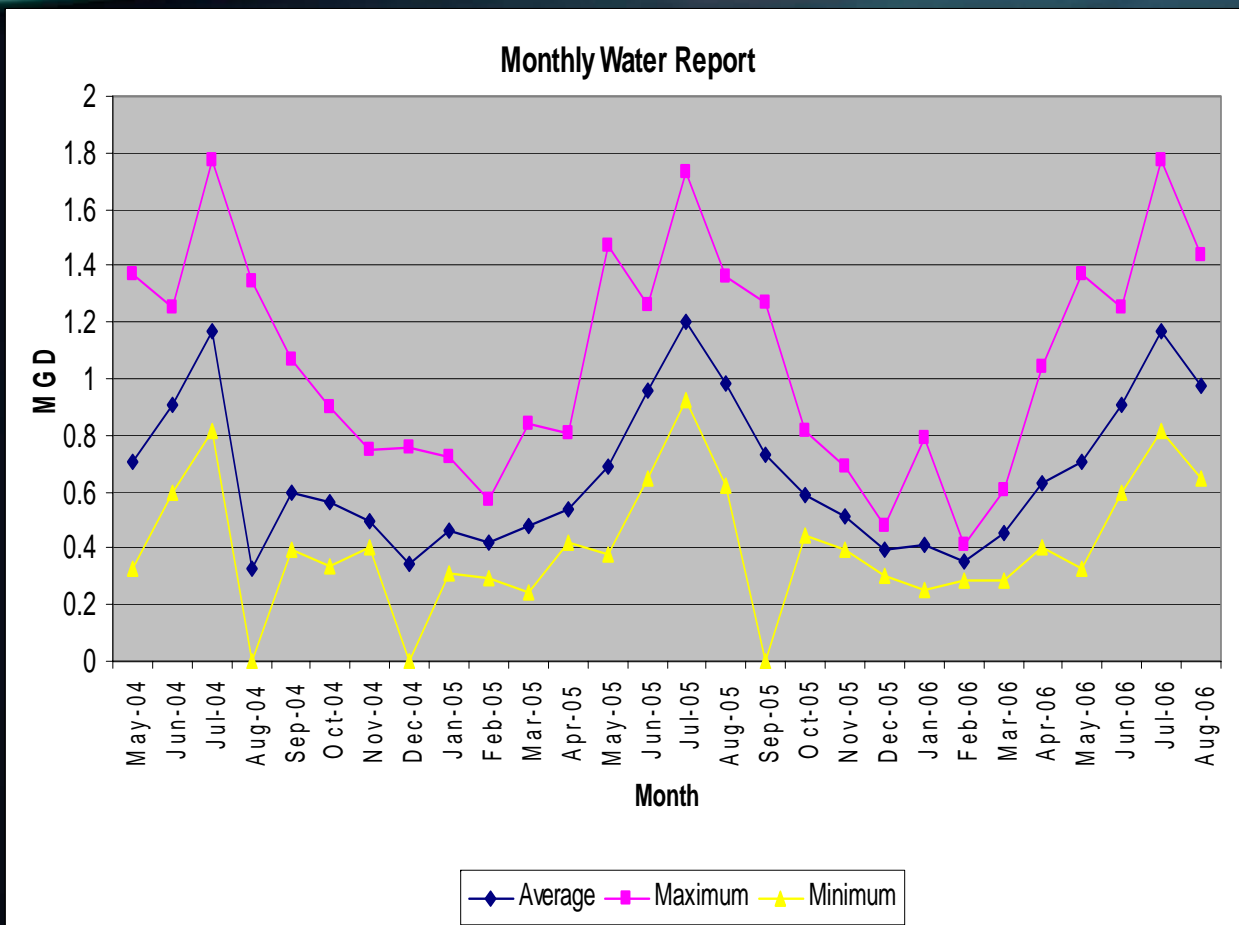
Additional area required for repair area **720 sf**

Total required area for a septic system **1,440 sf**

Lots that do not have 1,440 sf available **57%**



# Wastewater Flow Projections



Max Day = 1.8 mgd  
 Max Month = 1.2 mgd





## Wastewater Flow Projections

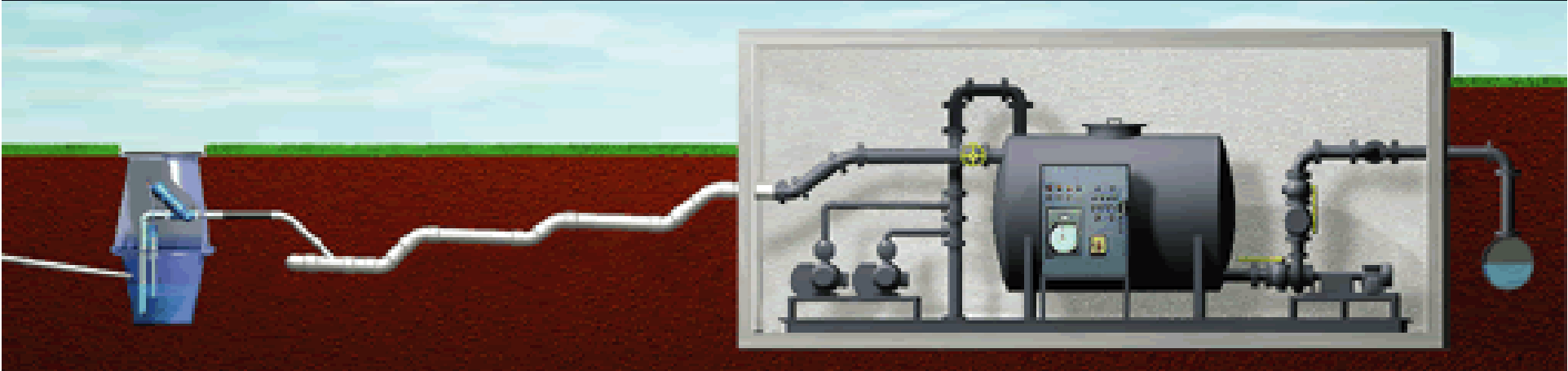
Max Month Daily Average	1.20 mgd
Growth	
Circle Development	0.14 mgd
Allowance for Existing Growth	<u>0.25 mgd</u>
subtotal	1.59 mgd
<b>Max Month = 80% plant capacity</b>	<b>2.00 mgd</b>





## Collection System Alternatives

	<u>Gravity</u>	<u>Vacuum</u>	<u>Pumped</u>
Capital Cost	\$40,440,000	\$24,960,000	\$25,340,000
Annual O&M Cost	\$615,000	\$290,000	\$453,800
Present Worth Cost	\$48,683,000	\$28,901,000	\$31,500,000





# Treatment System Alternatives

	<u>Conventional</u>	<u>SBR</u>	<u>Membranes</u>
Capital Cost	\$20,150,000	\$18,000,000	\$21,650,000
Annual O&M Cost	\$715,000	\$665,000	\$1,151,000
Present Worth Cost	\$30,700,000	\$28,900,000	\$39,480,000





## Wastewater Treatment

Sequencing Batch Reactor (SBR) process is the preferred option

- 💧 Wastewater treatment plant can be located on the elevated tank site on West Ft. Macon Road.
- 💧 5-day upset storage is required and provided
- 💧 Inclement weather concerns
  - ◆ Onsite generator
  - ◆ Construction will comply with FEMA requirements
- 💧 Odor Control







## Effluent Disposal

- 💧 High-rate infiltration is the best option for on-island disposal of effluent
- 💧 1.6 MGD can be disposed of on the selected sites







## Cost / Funding

	<u>Town-Wide</u>	<u>w/o Package Plants</u>
Capital Cost	\$60,000,000	\$54,000,000
Annual O&M	\$955,000	\$895,000
Number of Units	5,935	4,419

### Per Unit:

Initial Assessment	\$3,500	\$3,500
Monthly Sewer Bill	\$46	\$60





## Survey Results

Are you in favor of the Town constructing a central wastewater system?

Almost 2 to 1 responded in favor of a central sewer

Surveys Mailed = 4000 +/-  
Responses Received = 911  
(thru Nov 16)





Thank you for your attention.

Questions?

