

Sanitary Sewer Infrastructure and Septic Tanks

Water Advisory Board
September 14th, 2018

Historical Wastewater Treatment

- 1974
 - 115 WWTP treat 72 MGD to minimal quality standards
 - 66 WWTP discharge to inland surface waters (43.4 MGD)
 - 48 WWTP discharge to inland ground waters (7.5 MGD)
 - 26 MGD goes to Ocean Outfalls
 - These are outfalls in the near shore environment, not the current Ocean Outfalls that discharge beyond the 3rd reef
 - Almost every canal in the County receives wastewater effluent at this time
 - Pompano discharges untreated sewage to the Ocean

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POLLUTION CONTROL BOARD

ANNUAL REPORT
1973 - 1974

At the present time, one hundred fifteen treatment plants in the County process a flow of 72 million gallons of sewage. No untreated domestic sewage flows into inland waterways. However, all existing canals and waterways are polluted with waste materials to the extent that recreational use and aquatic life has been significantly decreased. Since Broward County is dependent upon groundwater reserves and rainfall as a drinking water supply, there is great concern that general water pollution in the area could affect our water supply. About 26 million gallons a day of

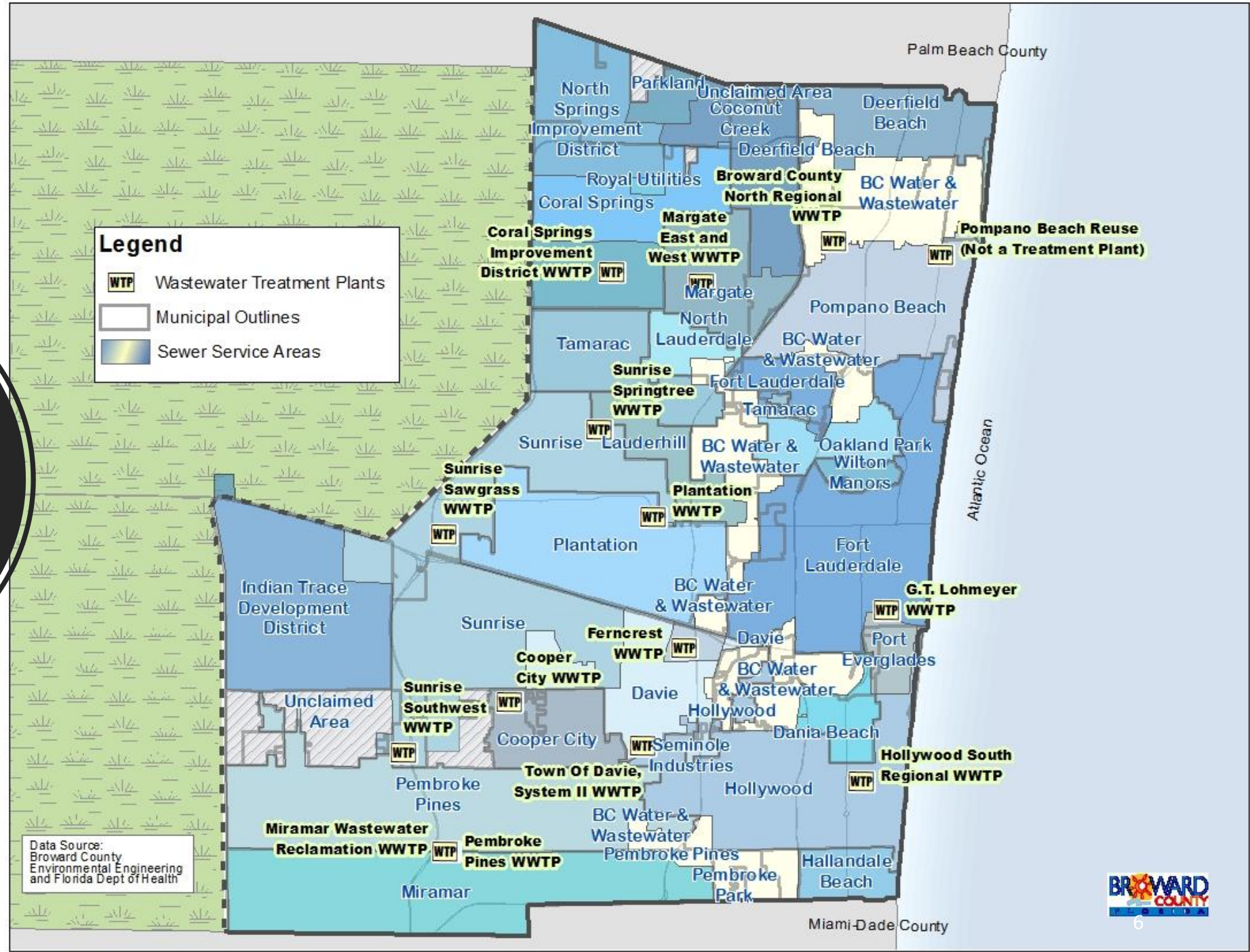
Historical Wastewater Treatment

- 1975-1976
 - Broward County 201 Study completed
 - Recommended a regional system of wastewater treatment with discharge through Ocean Outfalls.
- 1977
 - 94 WWTP treat 100 MGD
- 1979
 - 86 WWTP process 111 MGD to secondary treatment standards
 - 33 WWTP discharge 41.9 MGD to inland surface waters
 - 51 WWTP discharge 19.7 MGD to inland ground waters

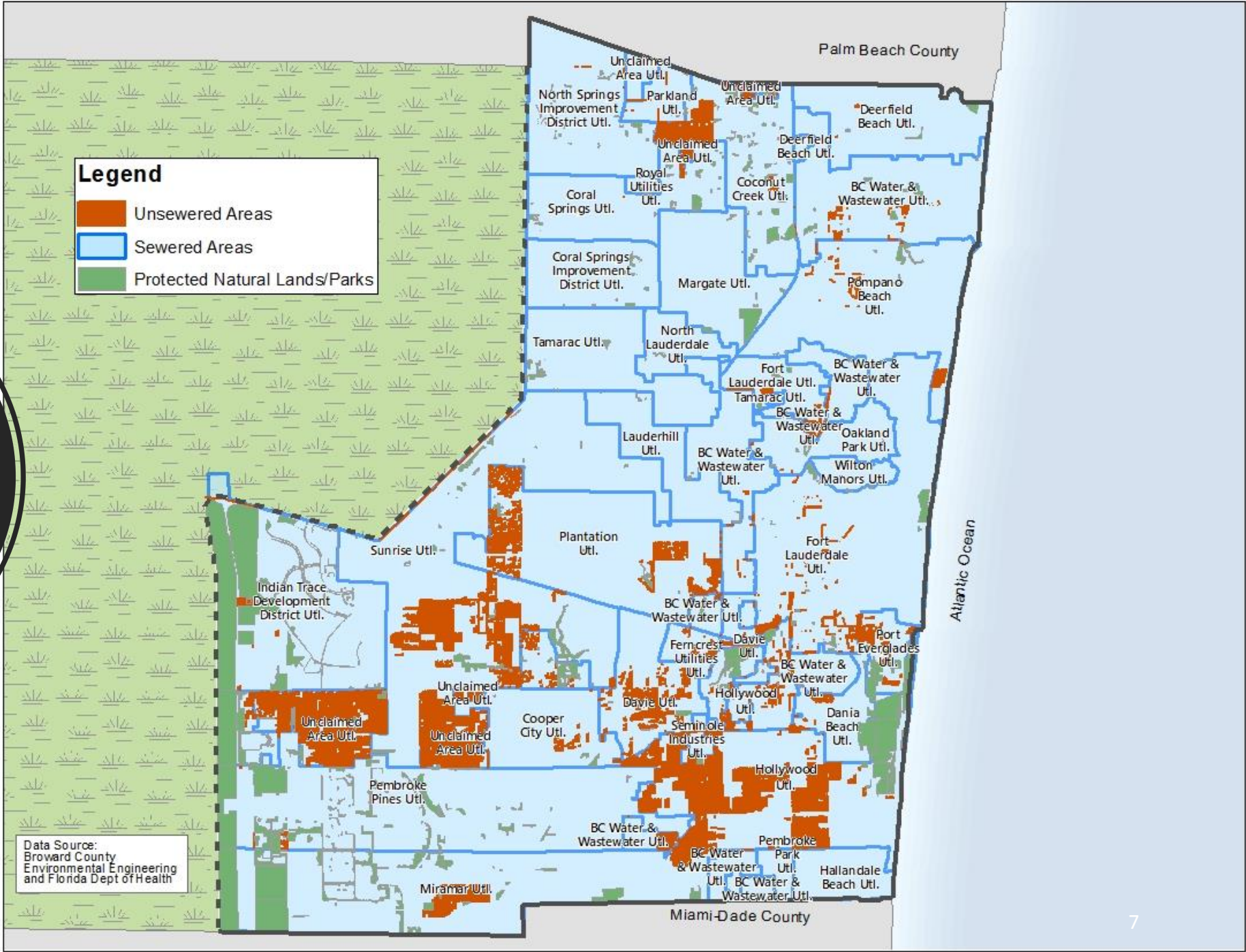
Historical Wastewater Treatment

- 1983
 - 51 WWTP in operation
- 1986
 - 28 WWTP in operation
- 1987
 - 16 WWTP in operation
 - 15 WWTP in operation today

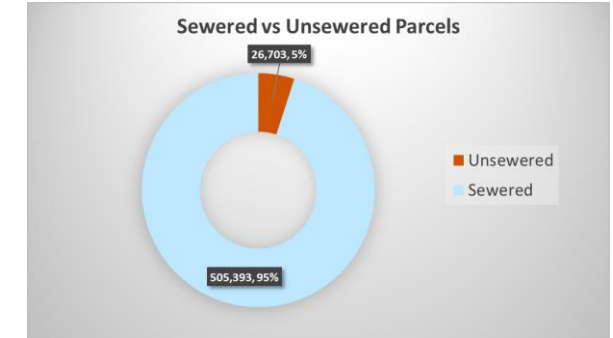
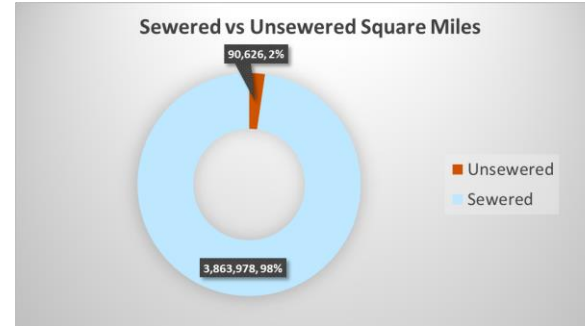
29 Service Areas & 15 WWTP



Sewered Areas by Service Area

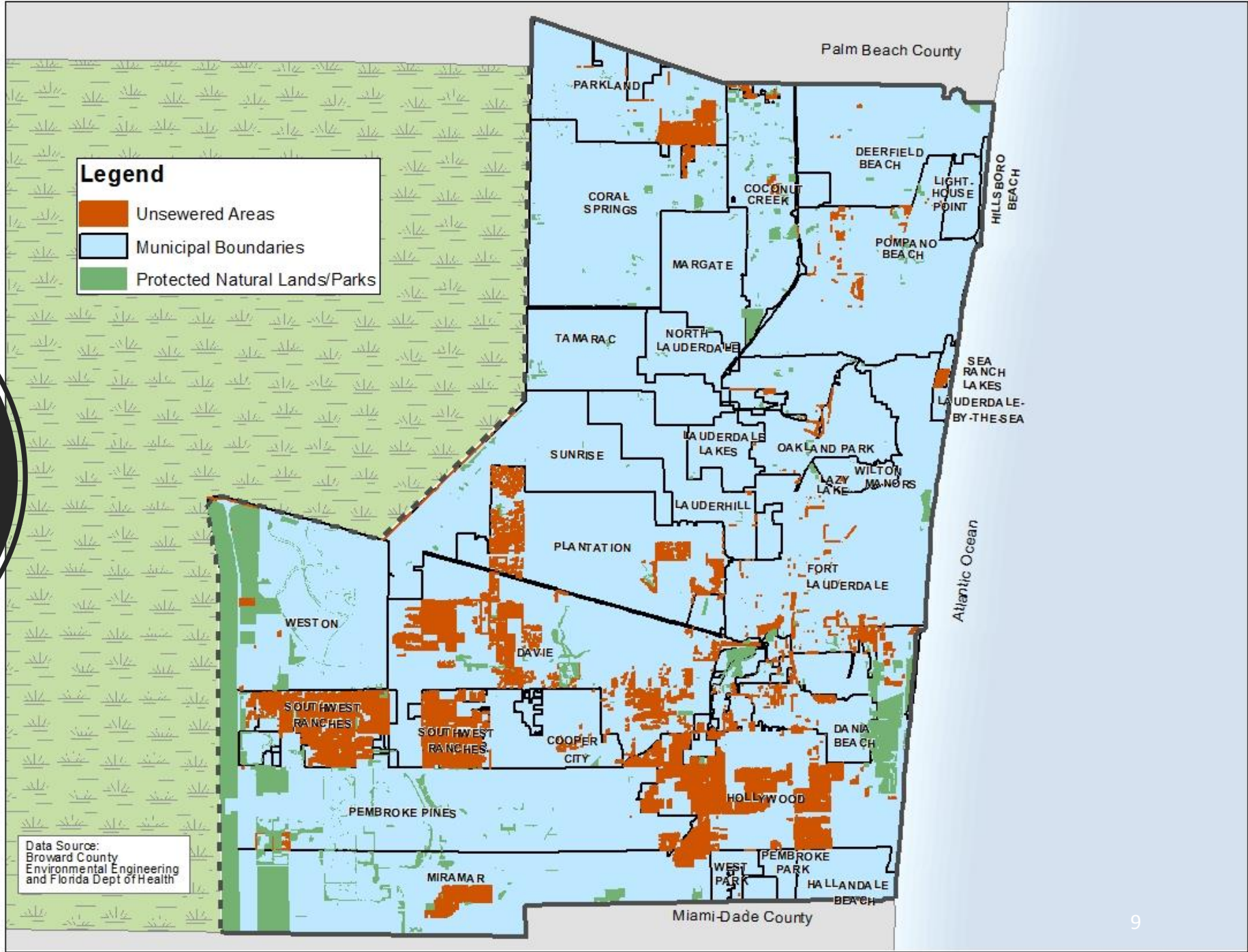


Service Area	% of Parcels Unsewered	% of Area Unsewered
Unclaimed Area	96.8%	94.1%
Hollywood	45.1%	14.1%
Ferncrest Utilities	19.2%	12.0%
Port Everglades	9.8%	10.6%
Davie	9.7%	3.9%
Coconut Creek	6.6%	11.8%
Plantation	4.2%	7.5%
Sunrise	3.7%	9.6%
Parkland	3.2%	0.5%
BC Water & Wastewater	3.1%	2.0%
Miramar	2.6%	0.7%
Dania Beach	1.9%	0.6%
Pompano Beach	1.1%	0.9%
Pembroke Park	1.1%	0.3%
North Springs Improvement District	0.4%	0.1%
Cooper City	0.4%	2.7%
Wilton Manors	0.3%	0.1%
Pembroke Pines	0.3%	0.8%
Fort Lauderdale	0.3%	0.1%
Oakland Park	0.1%	0.0%
Deerfield Beach	0.0%	0.1%
Indian Trace Development District	0.0%	1.3%
Tamarac	0.0%	0.0%
Lauderhill	0.0%	0.1%
Coral Springs	0.0%	0.0%
Coral Springs Improvement District	0.0%	0.0%
Margate	0.0%	0.0%
North Lauderdale	0.0%	0.0%
Royal Utilities	0.0%	0.0%
Hallandale Beach	0.0%	0.0%



Sewered area statistics by Service Area

Map of Sewered Areas by Municipality



Sewered area statistics by municipality

Municipality	% of Parcels Unsewered	% of Area Unsewered
LAZY LAKE	100.0%	100.0%
SEA RANCH LAKES	99.0%	85.6%
SOUTHWEST RANCHES	90.0%	89.2%
HOLLYWOOD	46.6%	15.1%
PARKLAND	11.3%	19.8%
DAVIE	8.5%	9.9%
PLANTATION	4.3%	8.1%
DANIA BEACH	2.7%	2.0%
MIRAMAR	2.6%	0.7%
UNINCORPORATED	1.4%	3.6%
PEMBROKE PARK	0.9%	0.3%
PEMBROKE PINES	0.6%	0.4%
COOPER CITY	0.4%	2.8%
POMPANO BEACH	0.3%	0.9%
FORT LAUDERDALE	0.2%	0.1%
COCONUT CREEK	0.1%	0.2%
WILTON MANORS	0.1%	0.1%
OAKLAND PARK	0.1%	0.0%
TAMARAC	0.1%	0.0%
WEST PARK	0.1%	0.5%
CORAL SPRINGS	0.0%	0.1%
WESTON	0.0%	0.6%
DEERFIELD BEACH	0.0%	0.0%
HALLANDALE BEACH	0.0%	0.0%
NORTH LAUDERDALE	0.0%	0.0%
HILLSBORO BEACH	0.0%	0.0%
LAUDERDALE BY THE SEA	0.0%	0.0%
LAUDERDALE LAKES	0.0%	0.0%
LAUDERHILL	0.0%	0.0%
LIGHTHOUSE POINT	0.0%	0.0%
MARGATE	0.0%	0.0%
SUNRISE	0.0%	0.0%

Is there sufficient
wastewater
treatment capacity
to absorb these
unsewered areas?

**WASTEWATER TREATMENT PLANT FLOW CALCULATIONS
FOR FACILITIES IN BROWARD COUNTY**
BASED ON THE MOST RECENT 3-MONTH ROLLING AVERAGE DAILY FLOW DATA

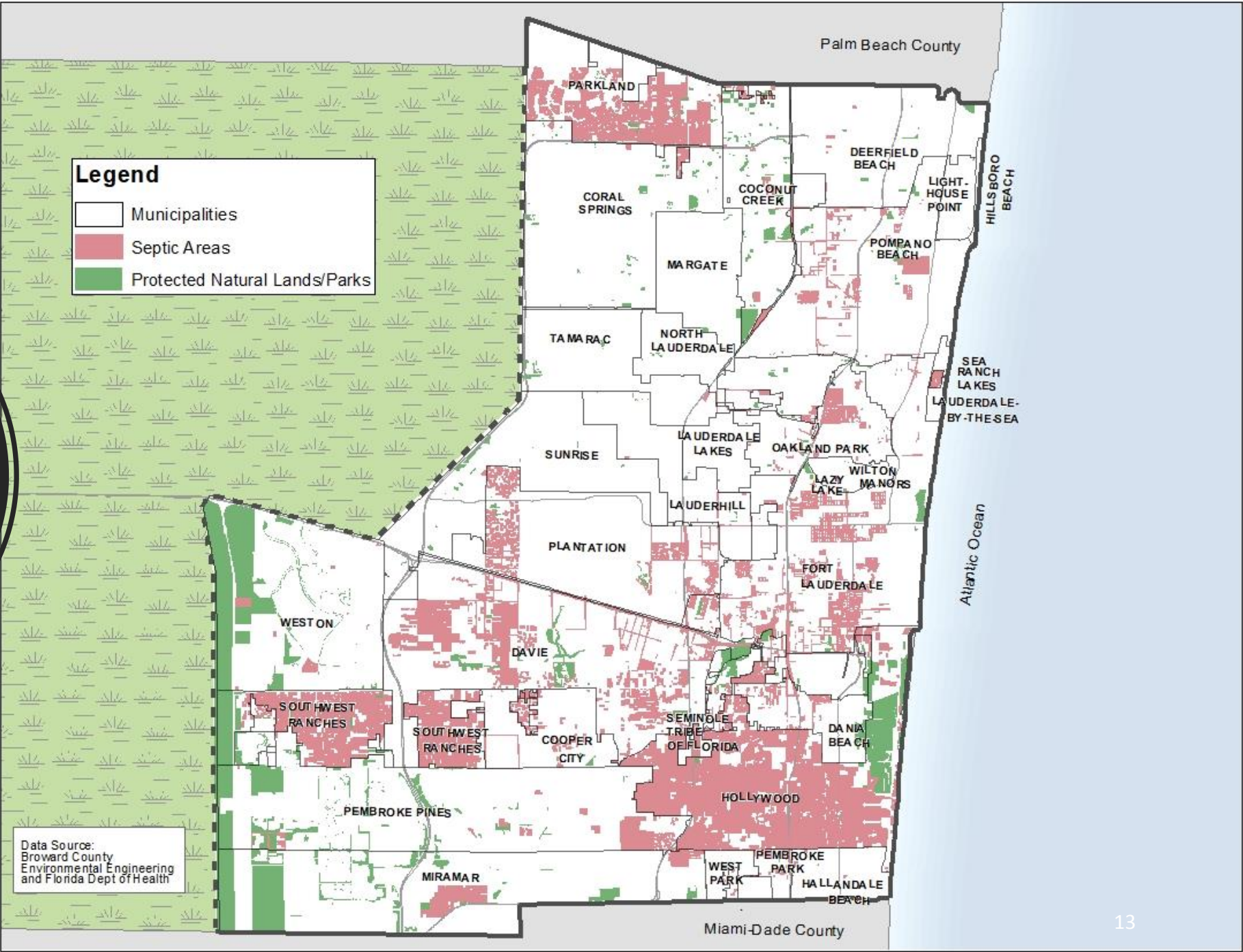
March 2018

PLANT NAME	LICENSED CAPACITY TMADF	Jan-18	Feb-18	Mar-18	3-MONTH AVERAGE	CURRENT CAPACITY UTILIZED (%)
(MILLION GALLONS PER DAY)						(%)
BCN	102.60	68.20	65.10	65.50	66.27	64.59%
COO	4.27	2.41	2.36	2.32	2.37	55.40%
CSI	8.67	4.42	4.09	3.71	4.07	46.98%
DA2	5.34	1.11	0.98	1.29	1.13	21.10%
DRF	4.4	1.23	1.24	1.31	1.26	28.64%
FER	0.600	0.346	0.322	0.325	0.331	55.17%
GTL	56.60	37.00	33.20	36.70	35.63	62.96%
HOL	63.30	34.43	33.15	38.05	35.21	55.62%
I-75	0.028	0.007	0.008	0.010	0.008	29.76%
MAR	11.10	6.86	7.12	6.54	6.84	67.71%
MIR	14.40	9.00	8.70	8.70	8.80	61.11%
PPI	10.64	6.20	6.01	6.08	6.09	57.27%
PLA	18.90	11.68	11.51	11.18	11.46	60.62%
POM	8.25	1.24	2.34	2.94	2.17	26.34%
SSA	21.80	12.87	12.85	12.47	12.73	58.40%
SSP	11.50	7.95	7.68	7.28	7.64	66.41%
SSW	0.500	0.399	0.392	0.294	0.362	72.33%
Totals	341.698	205.35	197.06	204.70	201.20	58.85%

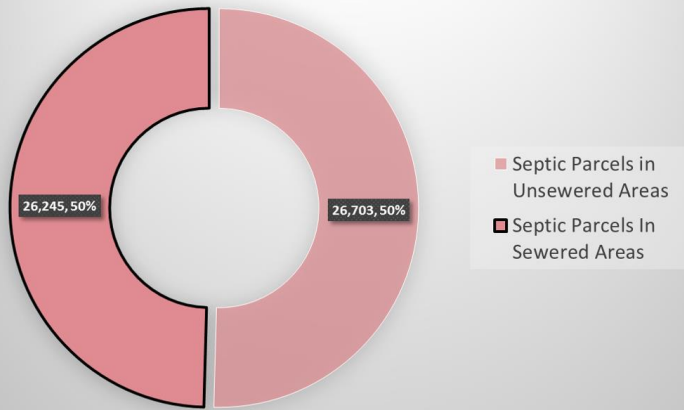
Roll up of UnSewered areas

- Amount of county remaining unsewered
 - 5% of developable parcels (26,703 parcels) and 2% of developable urban acreage
- All we need to do is “sewer” these areas and then septic tanks will be gone right?
- Unfortunately, No.
- Let’s look a little closer

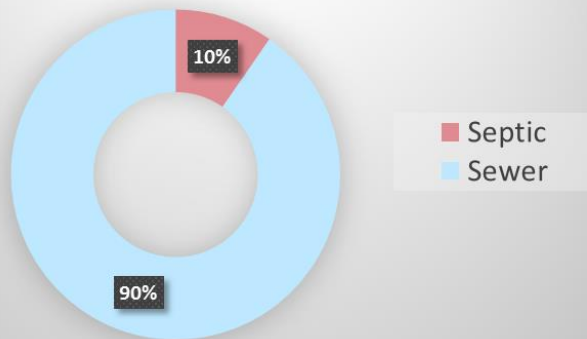
Map of Septic Areas



Septic Breakdown



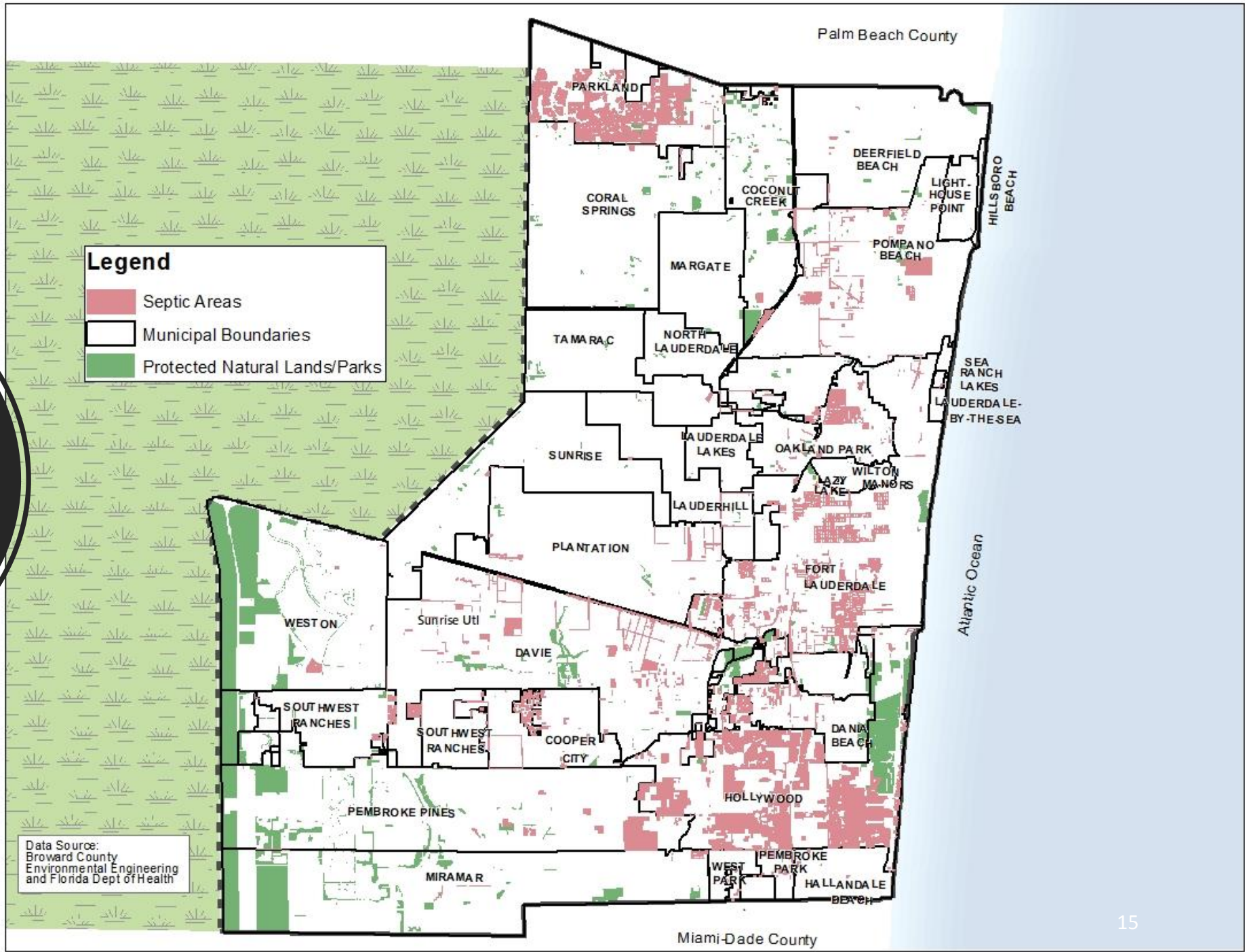
Total Septic vs Sewered Parcels



Septic Area Statistics

- Unsewered parcels (which have no septic alternative) only account for 50% of the parcels known or suspected to be on septic.
- The other 50% of the parcels on septic are within sewer areas.
- i.e. 10% of parcels in Broward are on septic, while only 5% of parcels are in unsewered areas.

Map of Septic Areas within Sewered Areas



What is going on here?

- Between 1974 and 1987, the County went from 115 WWTP discharging minimally treated wastewater to inland surface and ground waters to 15 “modern” wastewater treatment plants discharging secondary treated effluent to ocean outfalls and deep injection wells
- 31 years later, 5% of developable parcels remain unsewered and 10% of developable parcels are on septic (known and suspected).
- Broadview Park example:
 - Sewered as of 2013
 - Total number of homes – 1,405
 - Sewer connection permits issued as of 2018 – 813
- How does this happen?

Two ordinances govern septic to sewer conversion

- Chapter 34 Articles II and II ½
 - Article II is known as the “Water and Sewer Connection Ordinance”
 - Article II 1/2 is known as the “Water, Sanitary Sewer and Septic Tank Ordinance”
- Collectively, these ordinances require the connection of:
 - Existing homes and businesses which abut a (newly constructed) sanitary sewer main within one hundred eighty (180) days of construction
 - New development located within one-quarter (¼) mile of sanitary sewer as accessed via dedicated easements or rights-of-way

Chapter 34

Articles II and II ½

- These ordinances make it unlawful to:
 - Construct, install or repair septic tanks upon a property which abuts a sanitary sewer main
 - Drain sewage into septic tanks upon any property which abuts a sanitary sewer main
 - Willfully refuse to make a connection to sanitary sewer (in some cases)
 - Install a septic tank (in some cases)

Sounds good,
so why do we
still have septic
in sewerred
areas?

- Anecdotaly, Articles II and II ½ have even been cited as a disincentive to “sewer” an area, as it would “trigger” connection requirements
- Some property owners may be inclined to want to remain on septic

	Average Cost
Installation of lateral from home to sewer main	\$1,671
Cost to abandon septic tank	\$2,400
Permit	\$132
Capital Recovery Cost*	\$2,200+
TOTAL	\$6,403
Monthly Sewer bills	Recurring cost

*Capital Recovery Cost is waived by the Board of County Commissioners in all Broward County served area (since 1997) but may not be waived by municipalities in their jurisdiction.

- Exemptions and limitations in Articles II and II ½

Exemptions and Limitations

- Article II
 - Rural Ranches and Rural Estates land use categories exempt
 - Any owner of property who would be required to pay a connection charge may petition the board of county commissioners, the governing body of the municipality, or other entity having jurisdiction of the utility service area for an exception

Exemptions and Limitations


- Article II
 - Convoluted enforcement:
 - Initial notice to connect provided by “the appropriate municipal officer” prior to the completion of the system
 - If not connected within 180 days, the Director of the Broward County Health Department must then make a determination the building has not been connected to sewer mains, then notify the owner and demand that the connection be made within ninety (90) days.
 - If still not connected:
 - Director of the Broward County Health Department notifies the governing body
 - Governing body causes the connection to be effected
 - Governing body records a lien
 - The lien has the same effect as a mortgage
 - The lien is effective for twenty (20) years and is void after that
 - The governing body may, in cases of undue hardship, waive payment of the lien

Exemptions and Limitations

- Article II 1/2
 - Rural Ranches and Rural Estates land use categories are exempt
 - Only applies to residential subdivisions if they have five (5) or more lots one (1) acre or less in size.
 - The one-quarter ($\frac{1}{4}$) mile distance is measured as accessed via existing easements or rights-of-way.
 - Does not apply if the municipality is unwilling or unable to extend its water or sewer systems.

Exemptions and Limitations

- Article II 1/2
 - Convoluted enforcement:
 - The Broward County Health Department shall have the power and authority to enforce the provisions of this article.
 - May require an injunction.



Why should we
care?

Algal blooms

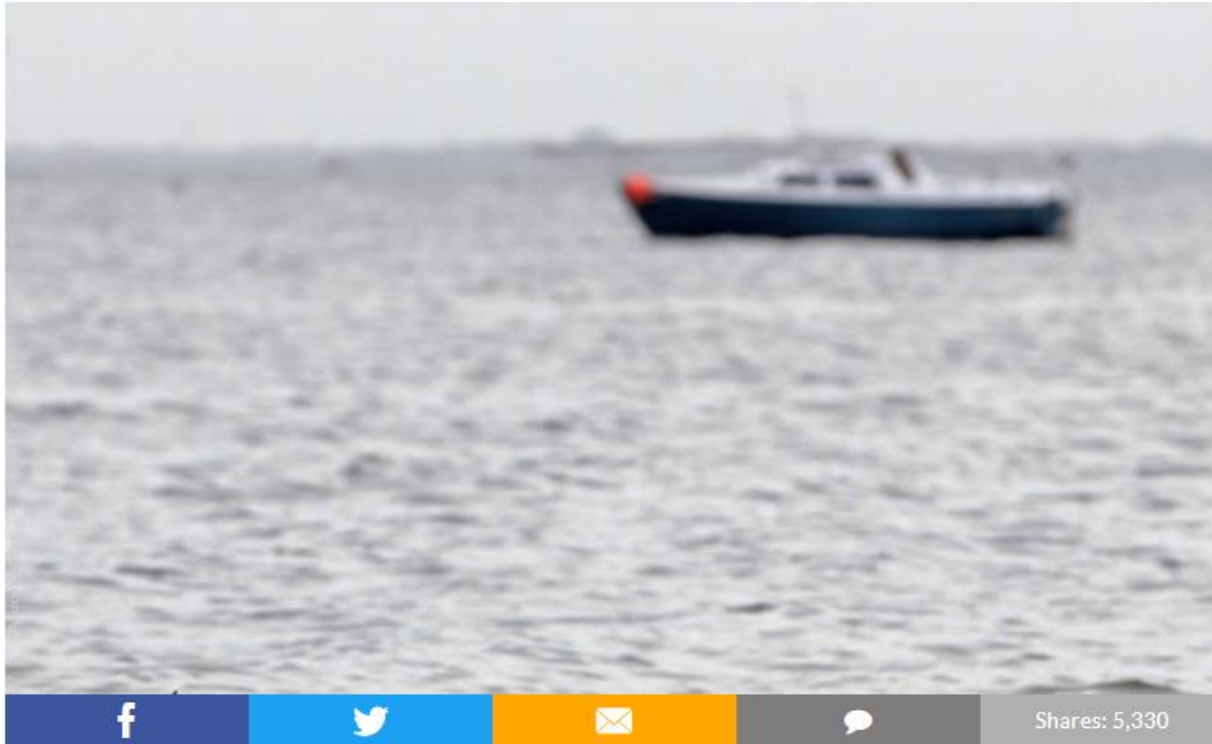
Swimming advisory issued for Broward County beach over unhealthy water

Advisory includes coastline near Hallandale Beach Boulevard

By Jeff Tavss - Executive Producer

Posted: 5:34 PM, August 16, 2018

Updated: 5:34 PM, August 16, 2018



HALLANDALE BEACH, Fla. - The Florida Department of Health issued a swimming advisory Thursday for the coastline near [Hallandale Beach Boulevard](#) after tests found unhealthy water.

Tests show bacteria in the water, which may cause gastroenteritis.

Nutrients and bacteria may contribute to algal blooms and public health concerns

Public Health

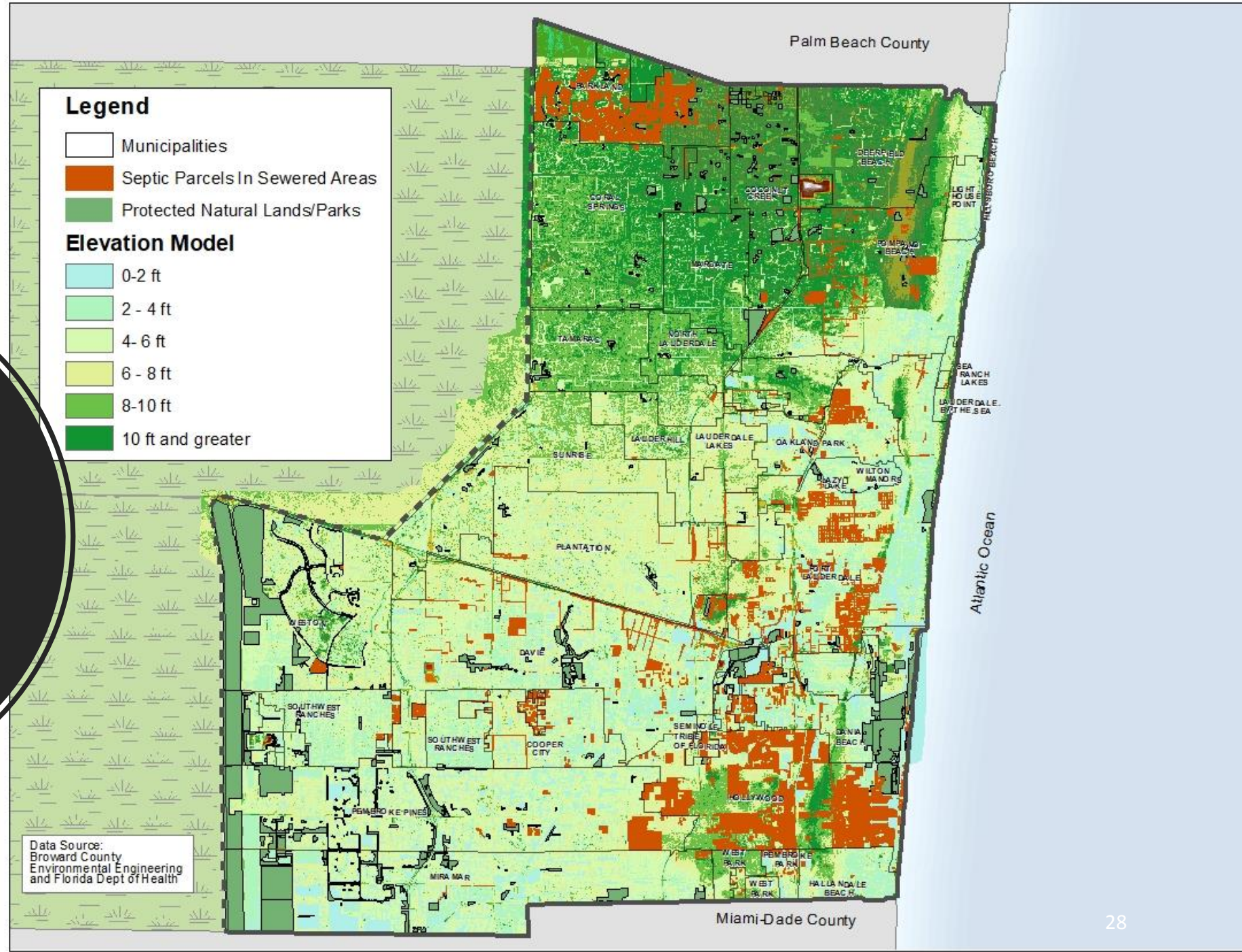
Underground Sources of Drinking Water

- Potential chemical contamination of the groundwater offers an added health risk to users of private potable wells.
- Homeowners on private potable wells
 - Treatment units relatively effective at improving aesthetic quality
 - Relatively less effective in removing pathogenic bacteria and viruses

Sea Level Rise

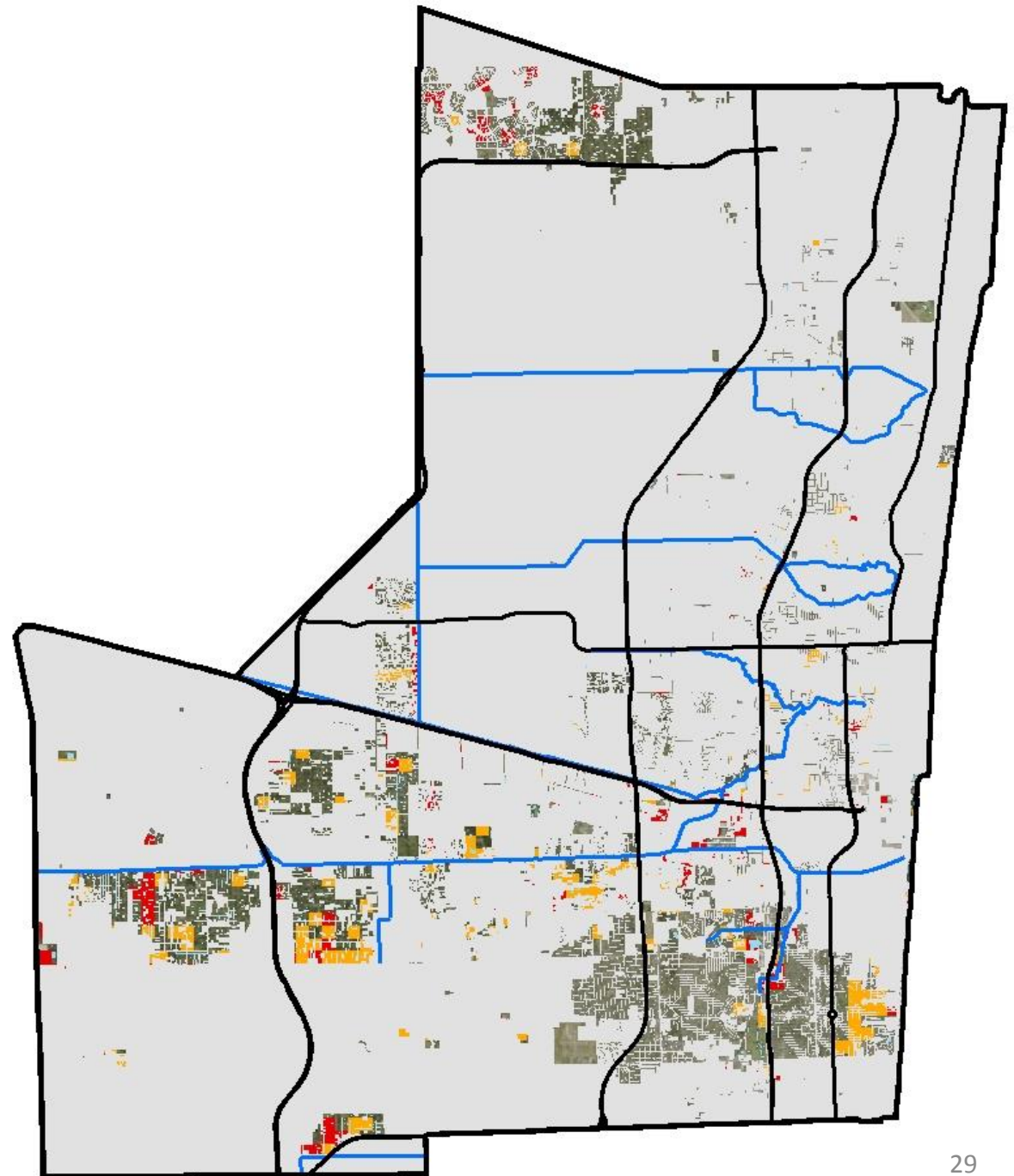
- New septic system drainfields must be above the ten (10) year flood elevations.
- Or
- Provide a minimum of twenty-four (24) inch separation between the water table and drainfield.

Many areas in Broward County have low land elevation and high groundwater tables



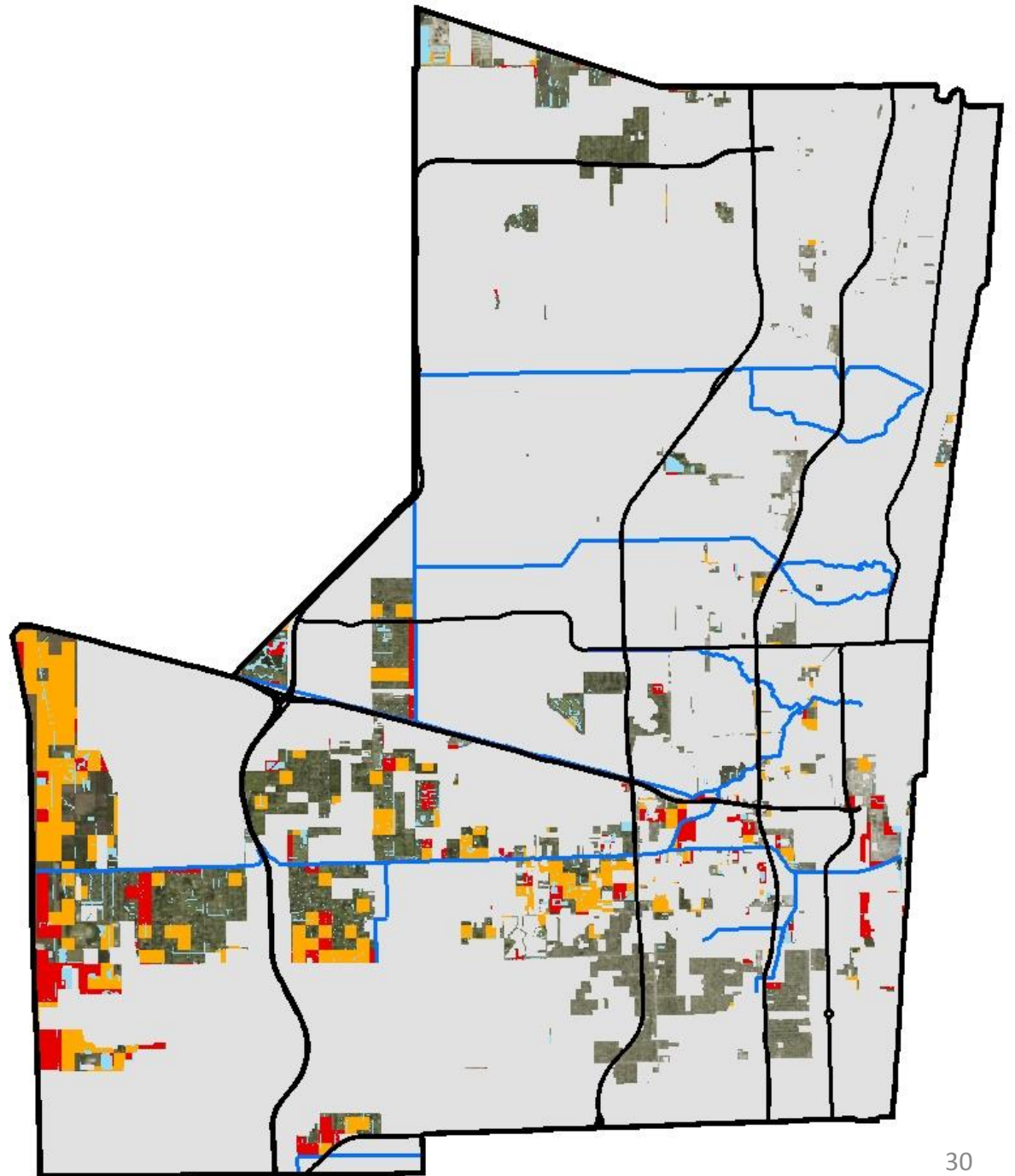
Map of septic areas vs sea level rise

Red are inundated areas
(negative storage)
Orange are less than 2
ft storage (0-2ft)



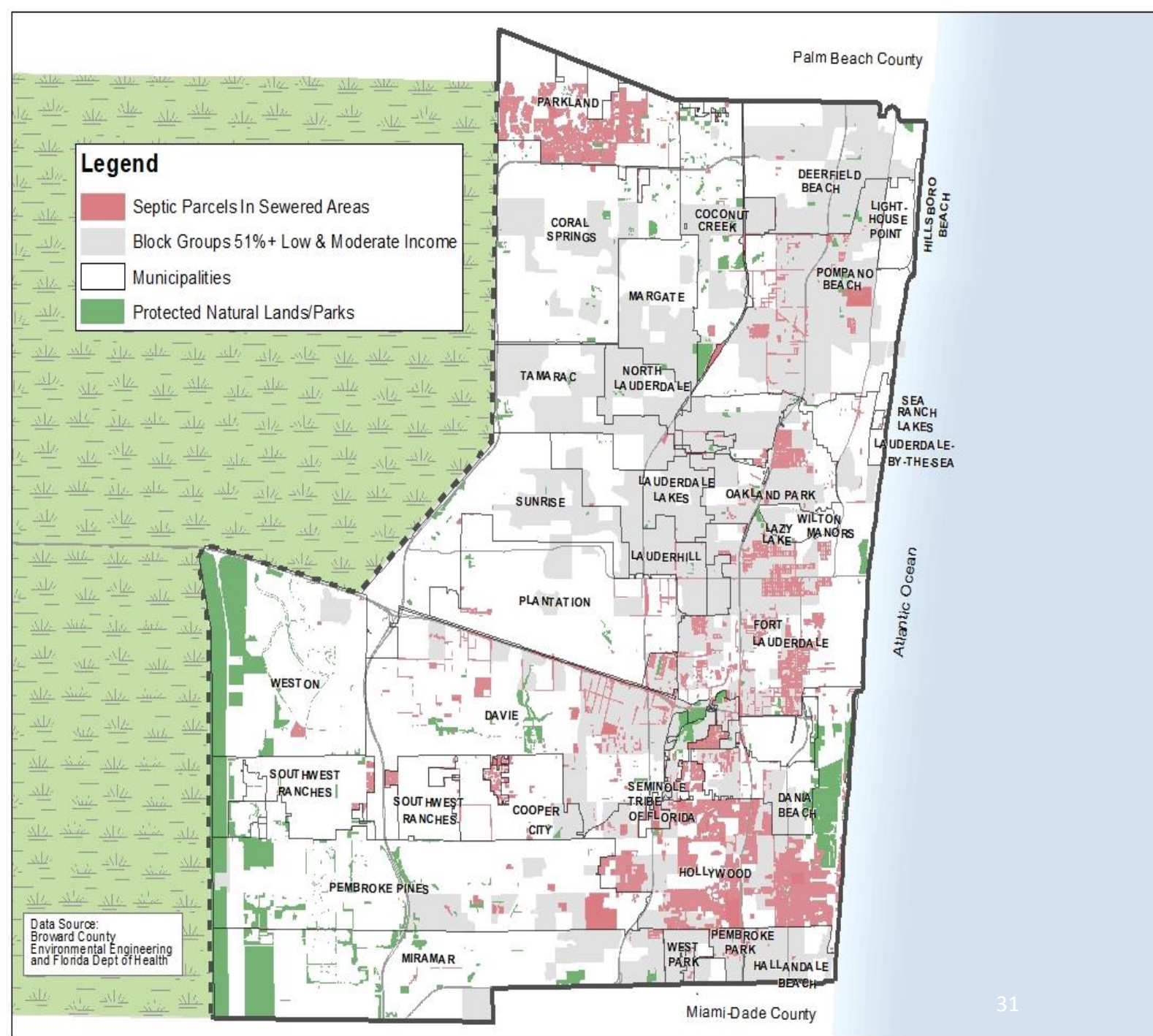
Map of unsewered areas vs sea level rise

Red are inundated areas
(negative storage)
Orange are less than 2
ft storage (0-2ft)



Septic in Sewered Areas vs Demographics

≈8,000 low/moderate income households on septic in sewered areas





Housing Finance and Community Redevelopment Water/Sewer Line Connection Program

- Provides connection of sewer lines and demolition of the existing septic tank.
- Eligible applicants must have gross incomes below 80% of the county median.
- Assistance is in the form of a grant with a five (5) year residency requirement. The home value cannot exceed \$317,647.
- County receives applications from homeowners
 - certifies eligibility
 - refers the project to Sagoma Construction for construction.
- County has expended approximately \$74,000 and assisted 21 homeowners since 2015.
- \$50,000 in SHIP funding currently available to homeowners in the unincorporated areas and small cities under 50,000 in population. The project cost per house is approximately \$5,000.
- If homeowners are interested in applying for grant funding, they should contact Mildred Reynolds at 954-357-4939 or mreynolds@broward.org.