SOUTHERN MONTGOMERY COUNTY MUNICIPAL UTILITY DISTRICT

RECLAIMED WATER SYSTEM

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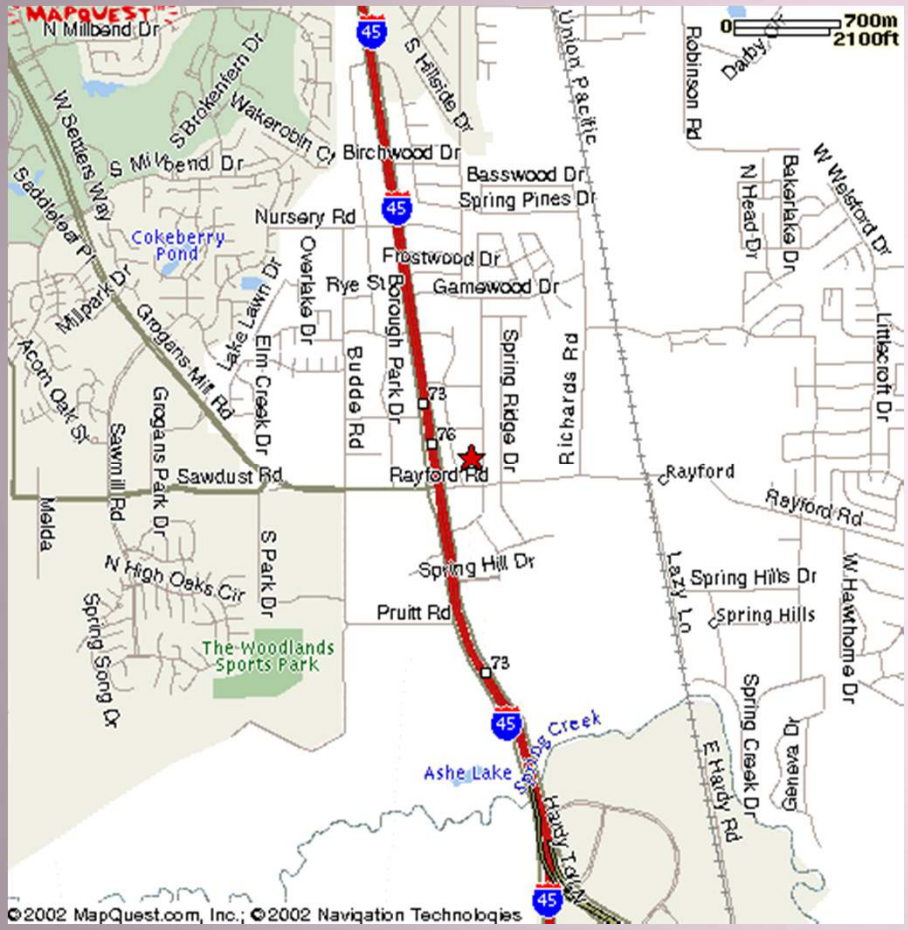
S.M.C.M.U.D. STATISTICS



- Located south of The Woodlands spanning IH45 with large commercial areas
- Serves 4,431 Equivalent Single Family Connections with population of 12,000
- 5 water wells
- Average Daily Demand 1.38 mgd
- Peak Summer Demand 2.5 mgd
- Wastewater Plant Average Daily Flow 0.9 mgd

WHY DOES S.M.C.M.U.D. NEED RECLAIMED WATER?

- Peak demand sometimes reaches 100% to 120% times average flow.
- Water levels in our aquifers continue to decline. Pumps have been lowered as far as possible.
- Additional water wells may provide more water, but with population growth and new developments, the aquifers may not provide an indefinite water supply.
- Surface water is on the way, however costs make it prohibitive to be used for landscape irrigation.
- Rainwater harvesting & other conservations are effective, but may not last during hard drought.

RECLAIMED WATER – INVESTIGATIVE PLANNING FOR S.M.C.M.U.D.

- Can we make it available for residential, commercial/multi-family irrigation systems plus common areas?
- What type of Regulatory agency approvals will be needed?
- Can we use existing components at WWTP?
- How does this affect our discharge permit?
- How much will it cost?

ALLOWED USES FOR RECLAIMED WATER SYSTEMS

- TCEQ Chapter 210 – Use of Reclaimed Water:

(1) TYPE 1 RECLAIMED WATER USE – This type includes irrigation or other uses in areas where the public may be present during the time when irrigation takes place or other uses where the public may come into contact with the reclaimed water. Type 1 uses would include:

(A) Residential irrigation, including landscape irrigation at individual homes.

(B) Urban uses, including irrigation of public parks, golf courses with unrestricted public access, school yards, or athletic fields.

(C) Fire protection, either in internal sprinkler systems or external fire hydrants.

(D) Toilet or Urinal flush.

(E) Irrigation of pastures for milking animals.

(F) Maintenance of impoundments or natural water bodies where recreational activities, such as wading or fishing are anticipated.

WILL THIS WORK?

ESTIMATED YEARLY IRRIGATION USAGE			COST COMPARISON				
Phase I Accounts	FLOW 1,000 GAL.	FLOW M.G.	AVG. ANNUAL IRR. REVENUE PER YEAR	ANNUAL SJRA FEES @ $2.25/1,000	ANNUAL LSGCD FEES @ $0.07/1,000	IRR. COSTS USING DOM. WTR.	IRR. COSTS USING RECLAIM. WTR.
Route 4 - Irrigation Accounts Only	14,924.00	14.92	$62,562.89	$33,579.00	$1,044.68	$97,186.57	$38,837.55
Route 5 - Oakhurst Drive	1,993.33	1.99	$10,373.61	$4,484.99	$139.53	$14,998.13	$9,804.12
Route 5 - Spring Ridge Drive	2,110.17	2.11	$12,260.77	$4,747.89	$147.71	$17,156.38	$11,064.48
Route 5 - Spring Woods Drive	304.20	0.30	$1,939.91	$684.45	$21.29	$2,645.66	$1,889.54
Route 5 - Timber Lane	625.26	0.63	$3,440.30	$1,406.83	$43.77	$4,890.89	$2,657.35
Route 3 - 201 Pruitt	3,475.70	3.48	$15,820.97	$7,820.32	$243.30	$23,884.59	$9,573.77
Route 3 - 301-1 Pruitt	1,209.77	1.21	$4,963.70	$2,721.98	$84.68	$7,770.36	$3,061.62
Route 3 - 301-2 Pruitt	2,161.73	2.16	$9,455.55	$4,863.89	$151.32	$14,470.77	$5,756.19
Route 5 - Woodforest Bank	503.13	0.50	$1,502.55	$1,132.05	$35.22	$2,669.81	$1,476.91
Route 5 - McDonald's	394.87	0.39	$431.81	$888.45	$27.64	$1,347.89	$486.19
Route 5 - Dr. Lieker	128.51	0.13	$204.17	$289.15	$9.00	$502.31	$427.03
Route 5 - Shell	145.80	0.15	$960.33	$328.05	$10.21	$1,298.59	$739.33
TOTALS	**27,976.46**	**27.98**	$123,916.57	$62,947.04	$1,958.35	$188,821.96	$85,774.08

AVG. YEARLY PUMPAGE LAST 5 YRS. 473.045

PERCENTAGE OF ANNUAL PUMPAGE **5.91%**

ESTIMATED AVERAGE CUSTOMER SAVINGS FOR PHASE 1 SYSTEM **$103,047.87**

- Determine availability of reclaimed water that can be produced.
- Utilize utility billing system to extract historical consumption data for last 5 years.
- Determine how to reach high volume users with a distribution system
- WWTP modifications required.
- Prepare feasibility study and cost analysis.
- Funding?

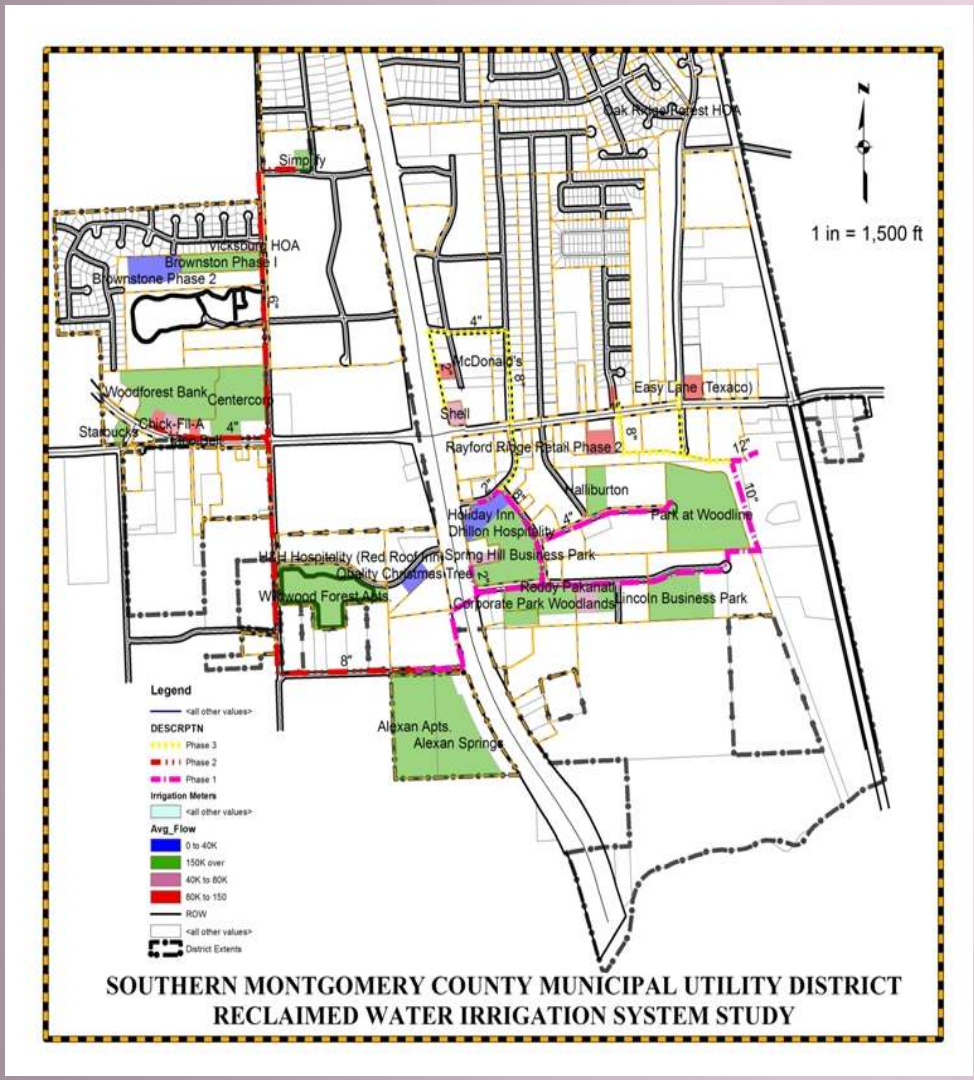
NEXT STEP - FEASIBILITY STUDY

Wastewater Plant Improvements

- Determine availability of wastewater that can be used.
- Evaluate capacity of existing tanks at plant.
- Can we retrofit any basins to be used with the proposed system?
- Does the plant site have adequate room for pumps, controls and pressure tanks to be added?

FEASIBILITY STUDY

Distribution System



- Locate high volume irrigation users.
- Layout distribution system in phases.
- What obstacles will we have to overcome to install system? Pipelines? Drainage ditches?
- Regulatory agency permits/approvals - City of Houston, TCEQ, TxDOT, Montgomery County
- Will easements or agreements be required?

HOW WILL WE PAY FOR THIS?

- SPA revenues
- General Fund Reserves
- Maintenance Taxes
- Water/Sewer Revenues
- TWBD
- Reclaimed Water Revenues

PROJECT ADVANTAGES TO DISTRICT

- WWTP proximity to commercial customers provided immediate access to high volume irrigation customers with 1st phase system.
- Existing WWTP structural components already in place saved approximately $1 million in up front costs.
- Substantial Reserve Fund available because Board of Directors were very judicial with their expenditures.
- Project will not require sale of bonds.
- Strategic Partnership Agreement (SPA) with the City of Houston.

FINANCIAL ADVANTAGE TO CUSTOMERS

Residential Rates

2 Mo.
Billing cycle

Tiered Consumption	Current Residential Rates	Reclaimed Irrigation Rates
0-20,000 Gal.	$30 Base Fee	$1.50/1,000 Gal.
20,000-40,000 Gal.	$1.50/1,000 Gal.	$1.50/1,000 Gal.
40,000-60,000 Gal.	$3.00/1,000 Gal.	$1.50/1,000 Gal.
Over 60,000 Gal.	$5.00/1,000 Gal.	$1.50/1,000 Gal.
SJRA Surface Wtr. Fee	$2.48/1,000 Gal.	None
LSCGD Pumpage Fee	$0.07/1,000 Gal.	None

Commercial Irrigation Rates

Tiered Consumption	Potable Irrigation w/Reclaim Wtr. Avail	Reclaimed Irrigation Rates
0-40,000 Gal.	$35 Base Fee	$1.50/1,000 Gal.
40,000-80,000 Gal.	$5.00/1,000 Gal.	$1.75/1,000 Gal.
80,000-150,000 Gal.	$7.50/1,000 Gal.	$2.25/1,000 Gal.
Over 150,000 Gal.	$10.00/1,000 Gal.	$2.25/1,000 Gal.
SJRA Surface Wtr. Fee	$2.48/1,000 Gal.	None
LSGCD Pumpage Fee	$0.07/1,000 Gal.	None

CONCLUSIONS

- SMCMUD's WWTP can serve as vital alternative water resource by using reclaimed water to replace domestic irrigations systems and reduce groundwater withdrawal.
- The system will be designed in multiple phases. Capital costs will be paid back through SPA revenues and reclaimed water revenues.
- Reclaimed water system eliminates LSGCD and SJRA fees plus helps the GRP meet groundwater reduction goals by reducing amount of surface water delivered.
- Water conservation means searching for ways to utilize our resources and reduce groundwater waste. What better way to reduce our waste of groundwater but by using wastewater for irrigation.

Questions