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THE WOOTEN COMPANY
ENGINEERING PLANNING ARCHITECTURE

September 17, 2015 Council Workshop Meeting - Pittsboro PER

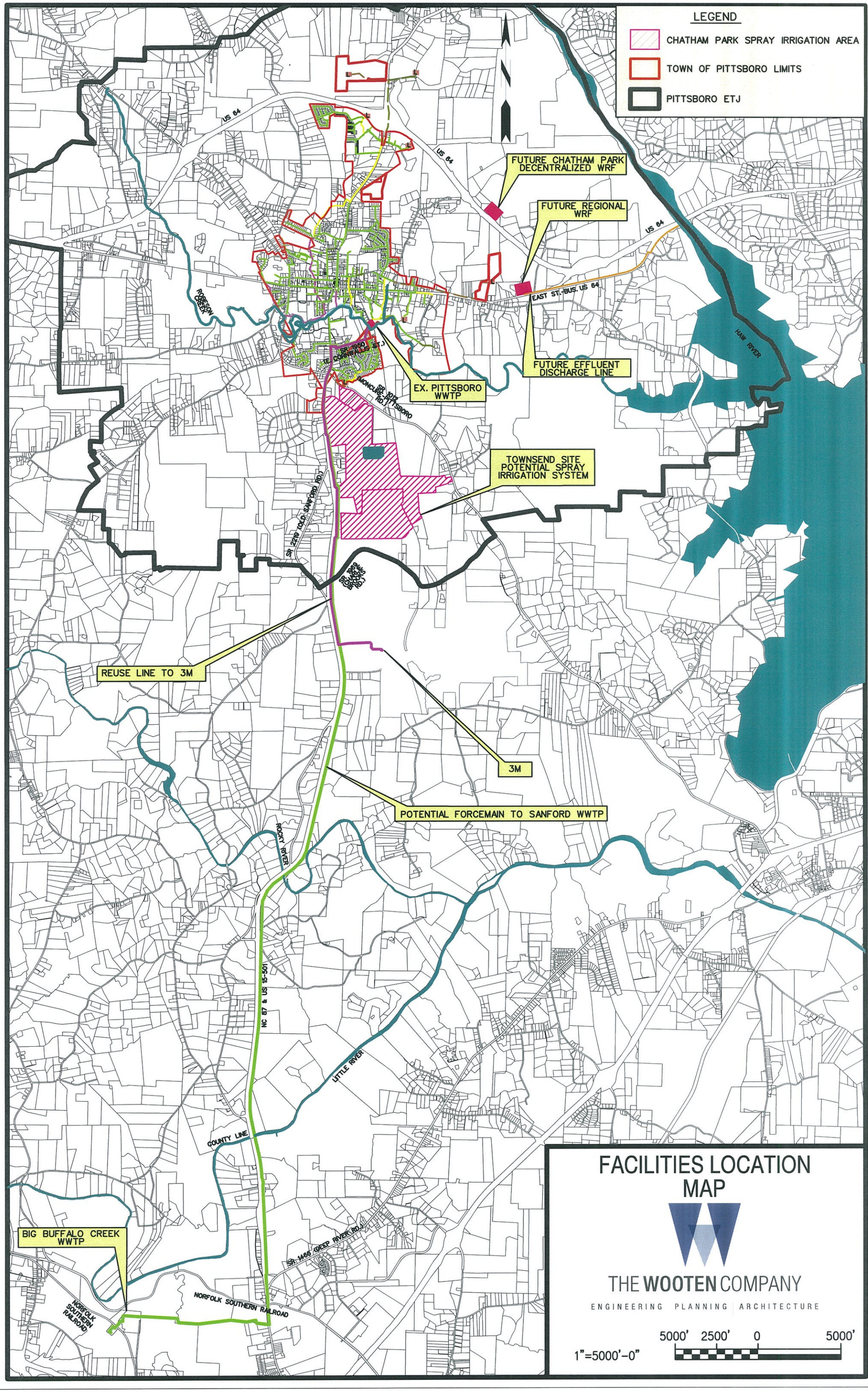
A. *Overview*
   1. Project Introduction/History
   2. Location/Facilities (maps)
   3. Existing Treatment Plant Aerial (figure)
   3. Future Flow Projections (graph)
   4. Treatment capacity needed and permitted discharge

B. *Treatment Options for Pittsboro and ETJ Area (No Chatham Park)*
   1. Option 1: Phased plant expansion.
   2. Option 2: Pump 2.0 mgd to Sanford and abandon existing WWTP
   3. Option 3: Build 2.0 mgd plant now.

C. *Treatment Options for Pittsboro and ETJ Area and Chatham Park Combined*
   1. Option A: Refurbish existing plant, pump to Sanford, and future regional plant with Chatham Park.
   2. Option B: Expand Existing Plant and future regional plant with Chatham Park.
   3. Option C: Decommission Existing WWTP, pump to Sanford, and future regional plant with Chatham Park.

D. *Cost and Non-Monetary Information*
   1. Pittsboro and ETJ Area
   2. Pittsboro and ETJ Area and Chatham Park Combined

E. Clean Water State Revolving Fund (CWSRF) Process
   1. Administered by Department of Environment and Natural Resources (DENR)
   2. Application deadline is September 30th to DENR. Next application is end of March 2016.
   3. DENR scores and ranks projects
   4. By early December, DENR posts project ranking on website.
   5. By mid-January DENR final project selection and letter of intent to fund sent out.
   6. Application and intent to fund letter **do not obligate** Pittsboro to any debt.
   7 PER submitted and approved by DENR.
   8. LGC approves the debt to be taken on by Pittsboro.
   9. Plans and specs approved by DENR.
   10. DENR provides loan offer and Pittsboro accepts at that time.
   11. Typically 2% interest rate, 20-year loan.
   12. CWSRF has $70M to loan out this round.


LEGEND
CHATHAM PARK SPRAY IRRIGATION AREA
TOWN OF PITTSBORO LIMITS
PITTSBORO ETJ
US 64
FUTURE CHATHAM PARK DECENTRALIZED WRF
FUTURE REGIONAL WRF
EAST ST./BUS. US 64
FUTURE EFFLUENT DISCHARGE LINE
EX. PITTSBORO WWTP
HAW RIVER
ROBESON CREEK
TOWNSEND SITE POTENTIAL SPRAY IRRIGATION SYSTEM
REUSE LINE TO 3M
3M
POTENTIAL FORCEMAIN TO SANFORD WWTP
ROCKY RIVER
NC 87 & US 15-501
LITTLE RIVER
COUNTY LINE
BIG BUFFALO CREEK WWTP
NORFOLK SOUTHERN RAILROAD
SR 1445 (DEEP RIVER RD.)
FACILITIES LOCATION MAP
THE WOOTEN COMPANY
ENGINEERING PLANNING ARCHITECTURE
1"=5000'-0"
5000' 2500' 0 5000'

TOWN OF PITTSBORO
EXISTING WWTP
S SMALL ST
50' Setback
100 Year Flood Zone
Floodway
10" SS
50' Setback
50' Setback
500 Year Flood Zone
100 Year Flood Zone
Sanitary Sewer
15" SS
8" SS
Floodway
100 Year Flood Zone
50' Setback
Floodway
Floodway
50' Setback
100 Year Flood Zone
500 Year Flood Zone
500 Year Flood Zone
50' Setback
100 Year Flood Zone
100 Year Flood Zone
500 Year Flood Zone
0 20 40 80
Feet

Wastewater Flow Projections

Projected WW Flow Including Chatham Park

Projected WW Flow Without Chatham Park

Combined Robeson Creek + Haw River Discharge (3.22 MGD)

Robeson Creek Discharge (1.249 MGD)

Current Plant Capacity (0.75 MGD)

Wastewater Flow (GPD)

6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0

2015
2020
2025
2030
2035

Town of Pittsboro and ETJ Area Wastewater Flows (No Chatham Park)

Wastewater Flow (GPD)

6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0

2015
2020
2025
2030
2035

Projected WW flow without Chatham Park
Total Capacity
Total Capacity - Sanford Option

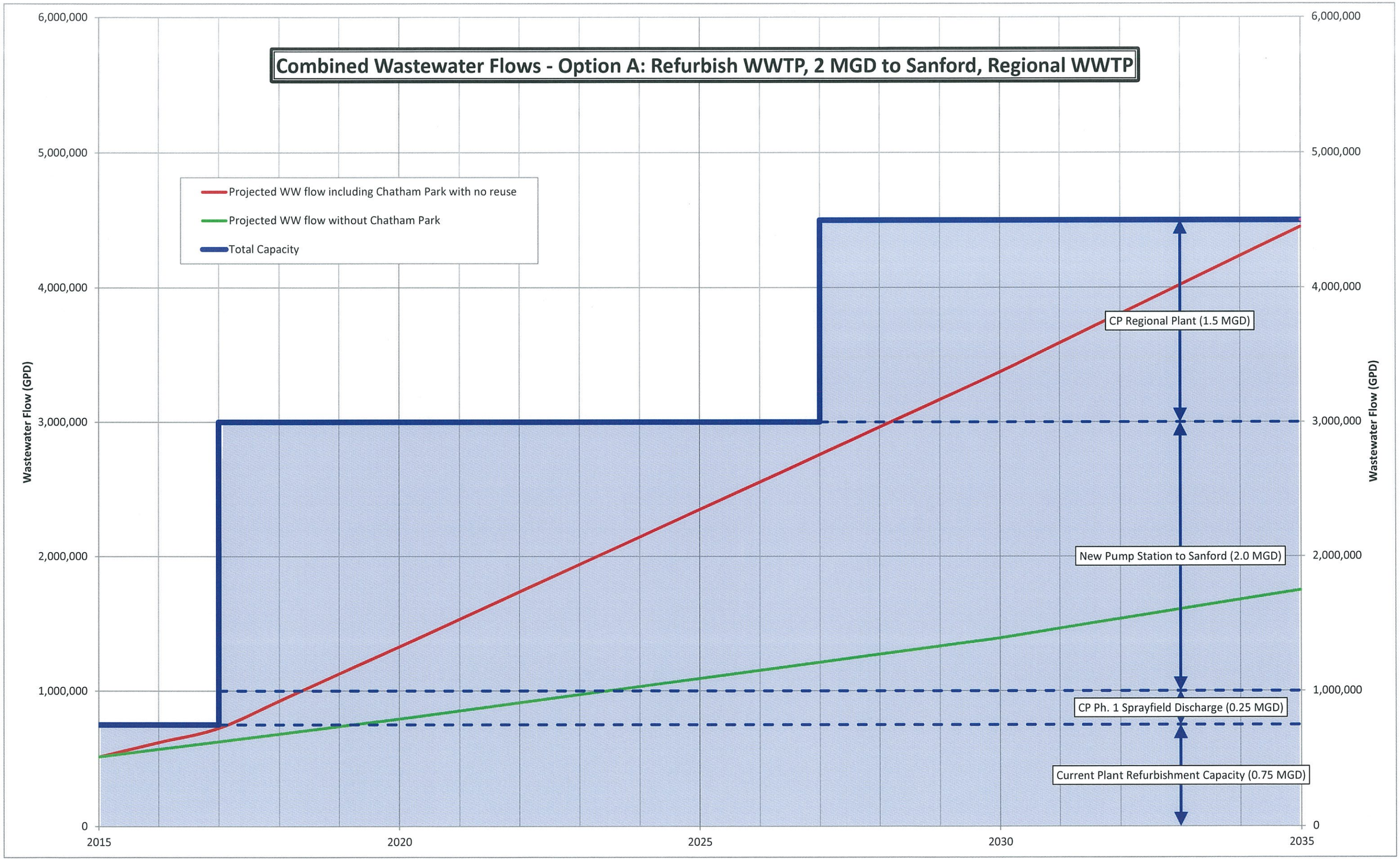
Sanford Option or New WWTP (2.0 MGD)

New Haw River Discharge (0.75 MGD)

Robeson Plant Expansion (0.5 MGD)

Current Plant Capacity (0.75 MGD)

Combined Wastewater Flows - Option A: Refurbish WWTP, 2 MGD to Sanford, Regional WWTP



Combined Wastewater Flows - Option B: Existing WWTP Expansion, Regional Plant

Projected WW flow including Chatham Park with no reuse
Projected WW flow without Chatham Park
Total Capacity

Limit of NPDES Discharge (3.22 MGD)

CP Regional Plant Expansion (1.5 MGD)
CP Regional Plant (1.25 MGD)
CP Ph. 2 Sprayfield Discharge (0.25 MGD)
CP Ph. 1 Sprayfield Discharge (0.25 MGD)
Robeson Plant Expansion (0.5 MGD)
Current Plant Capacity (0.75 MGD)

Wastewater Flow (GPD)

6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0

2015
2020
2025
2030
2035

Combined Wastewater Flows - Option C: 2 MGD to Sanford, Decommission Existing WWTP, Regional WWTP

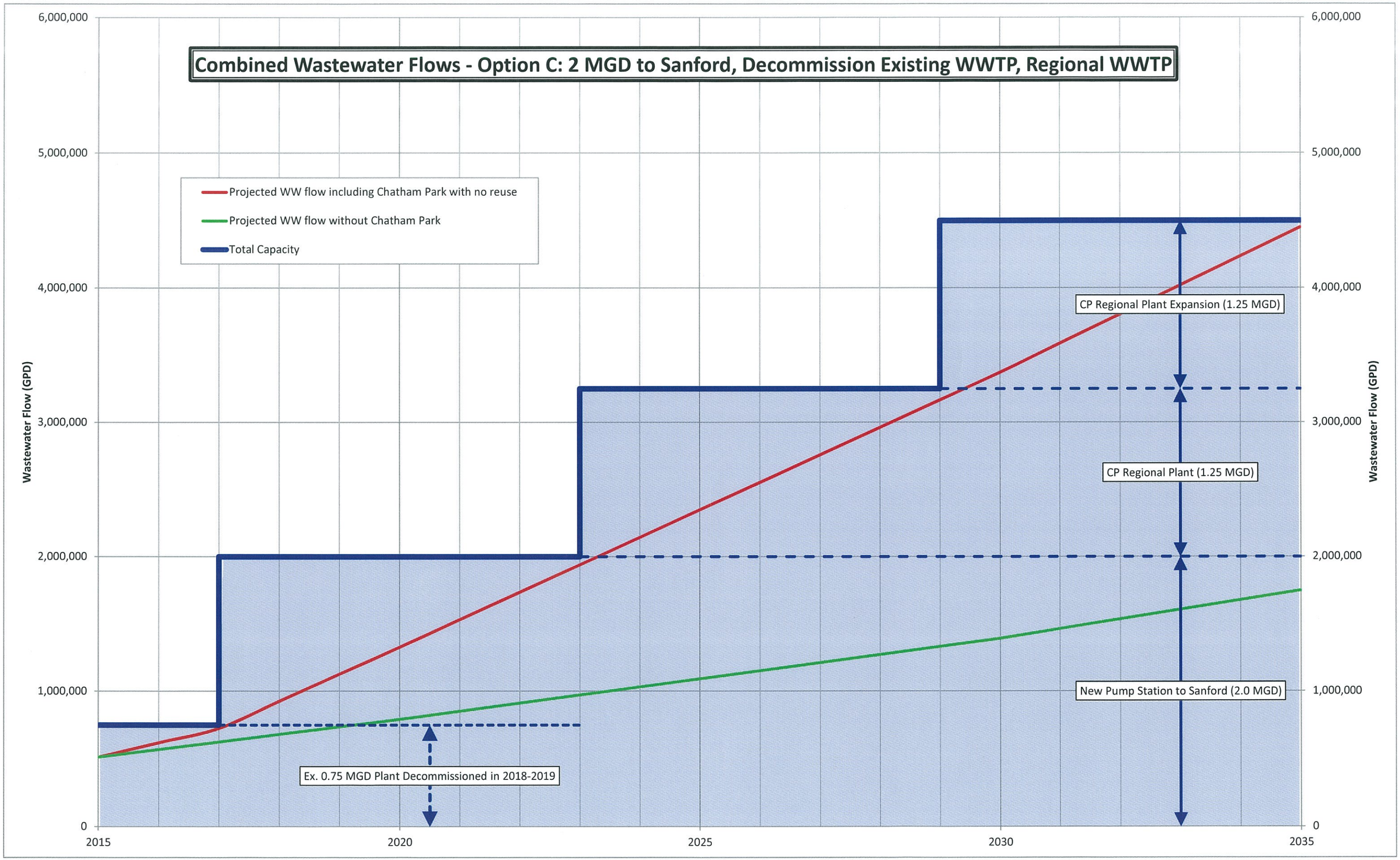


Table 1: Town of Pittsboro and ETJ Area (No Chatham Park Flow) Preliminary Cost Table								
Option	Initial Capital Cost Estimate[1]	Phase 2 Capital Cost Estimate	O&M Annual Estimate		Total Present Worth[2]	Initial Construction $/GAL[3]	O&M $/1,000 GAL	
			Year 1	Year 20			Year 1[4]	Year 20[5]
Option 1: Phased Expansion Phase 1 – 1.25 MGD Phase 2 – 0.75 MGD	$ 15,890,000	$ 8,880,000	$ 944,000	$ 1,221,000	$ 37,214,000	$ 12.71	$ 3.45	$ 1.67
Option 2: Pump to Sanford (2.0 MGD)	$ 18,550,000	$ 0	$ 1,341,000	$ 1,384,000	$ 35,633,000	$ 9.28	$ 4.90	$ 1.90
Option 3: Build 2.0 MGD Plant	$ 21,520,000	$ 5,660,000	$ 857,000	$ 1,289,000	$ 36,740,000	$ 10.76	$ 3.13	$ 1.77

Notes:
[1] - Capital Costs are representative of initial construction and would be proposed SRF loan amount.
[2] - Total Present Worth indicates the current worth of each respective alternative's total project cost in 2015 dollars, including future construction and O&M.
[3] - Value equals Initial Capital Cost divided by capacity provided = 1.25 MGD for Option 1, and 2.0 MGD for Options 2 and 3.
[4] - Year 1 O&M divided by 0.75 MGD. Current WWTP O&M cost is $3.29 per 1,000 gallons.
[5] - Year 20 O&M divided by 2.0 MGD

Table 2: Pittsboro and ETJ Area and Chatham Park Combined Preliminary Cost Table								
Option	Initial Capital Cost Estimate[1]	Future Phases Capital Cost Estimate[2]	O&M Annual Estimate		Total Present Worth[3]	Initial Construction $/GAL[4]	O&M $/1,000 GAL	
			Year 1	Year 20			Year 1[5]	Year 20[6]
Option A: Keep WWTP, Pump to Sanford, Regional WWTP	$ 30,330,000	$ 27,000,000	$ 1,934,000	$ 3,698,000	$ 85,336,000	$ 10.11	$ 7.06	$ 2.25
Option B: WWTP Expansion, Regional WWTP	$ 24,090,000	$ 58,000,000	$ 1,355,000	$ 2,808,000	$ 97,757,000	$ 16.06	$ 4.95	$ 1.71
Option C: Decommission WWTP, Pump to Sanford, Regional WWTP	$ 18,550,000	$ 45,000,000	$ 1,401,000	$ 2,789,000	$ 80,307,000	$ 9.28	$ 5.12	$ 1.70

Notes:
[1] - Capital Costs are representative of initial construction and would be the proposed SRF loan amount
[2] - Capital Cost of all future phases
[3] - Total Present Worth indicates the current worth of each respective alternative's total project cost in 2015 dollars, including future construction and O&M
[4] - Value equals Initial Capital Cost divided by capacity provided = 3.0 MGD for Option A, 1.5 MGD for Option B, and 2.0 MGD Option C
[5] - Year 1 O&M divided by 0.75 MGD
[6] - Year 20 O&M divided by 4.5 MGD

Table 3: Non-Monetary Advantages/Disadvantages Table		
	Advantages	**Disadvantages**
Treat Town and ETJ Area Flows (No Chatham Park)	• Excess NPDES capacity available • Continue to serve 3M • Pittsboro directly in control of costs and charges and operations. • Can use innovative treatment to minimize footprint	• Need to purchase land • Need to provide future treatment capacity and pump to the Haw in ~ 10 years. • Flood plain issues • More difficult construction on small site • Multiple construction phases.
Pump to Sanford	• Does not use NPDES discharge capacity. • Minimal treatment. • Less overall construction. • No floodplain issue. • Room available on-site for pump station.	• Not in charge of user and debt charges • Need alternate method to supply 3M. • Potential odor problems • May be competing with Chatham Park to use 2.0 mgd capacity at Sanford • Two river crossings (rock likely) will impact construction • May need to operate EQ tanks dependent on Sanford peak flow restrictions.
CP Regional Treatment Plant	• One joint discharge to the Haw – easier permitting. • Share resources with Chatham Park to operate joint WWTP. • Pittsboro and Chatham Park directly in control of costs and charges and operations.	• Need to determine debt service and O&M cost split with Chatham Park. • Will Chatham Park full build-out projections be realized? • Need to determine if plant will be privately operated or operated by the Town.
Decommission Existing WWTP	• Stop treating wastewater for ~ 10 years. • Avoid need to refurbish plant.	• Must serve 3M by other means • Must keep renewing NPDES permit to allow for future discharge. • Lose current plant asset value and potentially lose experienced operators. • Limits flexibility in options for working jointly with Chatham Park.