Oak Ridge North, Texas
Water and Wastewater Impact Fee Analysis

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EXECUTIVE SUMMARY

This study was performed to create the City of Oak Ridge North's Water and Wastewater System Impact Fees. Water and wastewater system analysis and the Water and Wastewater System Master Plan are important tools for facilitating orderly growth of the water and wastewater systems and for providing adequate facilities that promote economic development in the City of Oak Ridge North and its Extra-Territorial Jurisdiction (ETJ). The implementation of impact fees shifts the financial burden of new infrastructure to the developers/new users and away from the existing costumer.

Elements of the water and wastewater systems, including storage facilities, pumping facilities, treatment facilities, and the distribution and collection network itself, were evaluated against industry standards as outlined in the Design Criteria section of this report.

Water and wastewater system improvements necessary to serve the 10-year (2025) build out and ultimate system needs were evaluated. Typically, infrastructure improvements are sized beyond the 10-year requirements; however, Texas' impact fee law (Chapter 395) only allows recovery of costs to serve the 10-year planning period. For example, the projected cost to serve the ultimate water and wastewater system needs is $10,770,000. Of this, $9,711,260 is projected to be eligible for recovery through impact fees within the next 10 years. A portion of the remainder can be assessed as the planning window extends beyond 2025 and as the impact fees are updated in the future.

The impact fee law defines a service unit as follows, "'Service Unit' means a standardized measure of consumption attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards and based on historical data and trends applicable to the political subdivision in which the individual unit of development is located during the previous 10 years." Therefore, the City of Oak Ridge North defines a *service unit* as an Equivalent Single Family Connection (ESFC) that consumes the amount of water requiring a standard 5/8" meter. For a development that requires a different size meter, a service unit equivalent is established at a multiplier based on its capacity with respect to the 5/8" meter. The equivalency factor and associated impact fee by meter size is shown in **Table 1.1.**

Based on the City's 10-year growth projections and the associated demand (consumption) values, **1,473** additional service units will need water and wastewater by the year 2025. Based on the additional service units and the recoverable capital improvements plans, the City may assess a maximum of **$3,297** per ESFC. In the event that all areas described below are not able to be served by the City of Oak Ridge North, refer to Appendices 3 – 8 to determine the projected demand and associated impact fee.

Table 1.1 Maximum Assessable Impact Fee for Commonly Used Meters – For All Areas Inclusive of ETJ & TIRZ No. 1 Boundary (Not Presently served by others)

Meter Size	Maximum Flow (GPM)	Equivalent Single Family Connection (ESFC)	Maximum Assessable Water Fee ($/ESFC)	Maximum Assessable Wastewater Fee ($/ESFC)	Maximum Assessable Fee ($/ESFC)
5/8”	15	1.00	$ 1,424.00	$ 1,873.00	$ 3,297.00
3/4”	25	1.67	$ 2,377.00	$ 3,128.00	$ 5,505.00
1”	40	2.67	$ 3,801.00	$ 5,001.00	$ 8,802.00
1 1/2”	120	8.00	$ 11,388.00	$ 14,983.00	$ 26,371.00
2”	170	11.33	$ 16,129.00	$ 21,220.00	$ 37,349.00
3”	350	23.33	$ 33,211.00	$ 43,694.00	$ 76,905.00
4”	600	40.00	$ 56,942.00	$ 74,915.00	$ 131,857.00
6”	1,200	80.00	$ 113,884.00	$ 149,830.00	$ 263,714.00
8”	1,800	120.00	$ 170,825.00	$ 224,745.00	$ 395,570.00

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1. INTRODUCTION

The City of Oak Ridge North retained the services of Jones|Carter for the purpose of analyzing and creating the impact fees for the water and wastewater system improvements required to serve new development. These fees are to be developed in accordance with Chapter 395 of the *Local Government Code* (impact fees), which requires a city imposing impact fees to update the land-use assumptions and capital improvements plan upon which the fees are calculated.

The purpose of this report is to satisfy the requirements of the law and provide the City with an impact fee capital improvements plan and associated impact fees.

For convenience and reference, the following is excerpted from Chapter 395 of the code:

(a) The political subdivision shall use qualified professionals to prepare the capital improvements plan and to calculate the impact fee. The capital improvements plan must contain specific enumeration of the following items:

(1) a description of the existing capital improvements within the service area and the costs to upgrade, update, improve, expand, or replace the improvements to meet existing needs and usage and stricter safety, efficiency, environmental, or regulatory standards, which shall be prepared by a qualified professional engineer licensed to perform such professional engineering services in this state;

(2) an analysis of the total capacity, the level of current usage, and commitments for usage of capacity of the existing capital improvements, which shall be prepared by a qualified professional engineer licensed to perform such professional engineering services in this state;

(3) a description of all or the parts of the capital improvements or facility expansions and their costs necessitated by and attributable to new development in the service area based on the approved land use assumptions, which shall be prepared by a qualified professional engineer licensed to perform such professional engineering services in this state;

(4) a definitive table establishing the specific level or quantity of use, consumption, generation, or discharge of a service unit for each category of capital improvements or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including but not limited to residential, commercial, and industrial;

(5) the total number of projected service units necessitated by and attributable to new development within the service area based on the approved land use assumptions and calculated in accordance with generally accepted engineering or planning criteria;

(6) the projected demand for capital improvements or facility expansions required by new service units projected over a reasonable period of time, not to exceed 10 years; and

(7) a plan for awarding:

(A) a credit for the portion of ad valorem tax and utility service revenues generated by new service unit during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or

(B) in the alternative, a credit equal to 50 percent of the total project cost of implementing the capital improvements plan.

The study process was comprised of four tasks:

A. LAND USE ASSUMPTIONS

This task involved reviewing the City's current growth, land planning in the City's Corporate Limits and the ETJ and projecting development and the associated utility demand for the next 10 years.

B. EVALUATION OF THE WATER AND WASTEWATER SYSTEM MASTER PLAN

This task involved reviewing the current water and wastewater systems and the growth projection. The demand projections were then used to determine the additional service units.

C. IMPACT FEE CAPITAL IMPROVEMENTS PLAN

This task involved evaluation of the water and wastewater capital improvement projects depicted in the master plan and discussion with City staff to identify projects that will be built in the 10-year planning window and meet the design criteria.

D. IMPACT FEE ANALYSIS AND REPORT

This task included calculating the additional service units, service unit equivalents, and credit reduction. These values were then used to determine the impact fee per service unit and the maximum assessable impact fee by meter size.

2. WATER SYSTEM DESIGN CRITERIA

A. WATER TRANSMISSION LINES

Water transmission lines shall be sized to maintain the following pressure requirements:

- Peak hour demand with a minimum pressure of 35 psi;
- Peak day demand plus fire flow with a minimum pressure of 20 psi.

B. STORAGE TANKS

The Texas Commission on Environmental Quality (TCEQ) and the State Board of Insurance (SBI) have established criteria for ground and elevated storage. These criteria address volume and height requirements only. The layout of the distribution system, location of the storage facilities, and the interaction with the high service and booster pumps affect the amount of storage necessary for the most efficient and reliable operation of the system.

i. GROUND STORAGE

Ground storage serves two functions:

- Equalization for differing feed rates between the water supply and pumping to the system; and
- Emergency capacity in the event of temporary loss of water supply.

Generally, ground storage facilities are located at water supply points or at each pump station within the water distribution system. Suggested storage capacities are established based on several criteria. There are specific requirements of the TCEQ. These criteria are detailed later in this section. Although ground and elevated storage facilities perform separate functions within the system, both are aimed at decreasing the impact of demand fluctuations. Their capacities are established based on knowledge of how demand varies seasonally and daily.

ii. ELEVATED STORAGE

Elevated storage serves three purposes:

- Functionally, elevated storage equalizes the pumping rate to compensate for daily variations in demand and to maintain a fairly constant pumping rate (usually referred to as operational storage), or a pumping rate that conforms to the requirements of the electrical rate structure.
- Provides pressure maintenance and protection against surges created by instantaneous demand, such as fire flow and main breaks, and instantaneous change in supply, such as pumps turning on and off.

- Maintains a reserve capacity for fire protection and pressure maintenance in case of power failure to one or more pump stations. Sufficient storage should be maintained to provide four hours of fire flow demand during a loss of power to the pump station.

Suggested storage capacities are established by the TCEQ. Adequate operational storage is established by determining the required volume to equalize the daily fluctuations in flow during the maximum day demand, plus the reserve volume required for fire protection.

The minimum requirements for storage, according to Chapter 290 of the Texas Administrative Code, are as follows:

- Total Storage - Equal to 200 gallons per connection.
- Elevated Storage - Equal to 100 gallons per connection; or
- Elevated Storage – Equal to 200 gallons per connection for a firm pumping capacity reduction from 2.0 gallons per connection to 0.6 gallons per connection.

C. PUMP STATIONS

Pumping capacities must provide the maximum demand or the peak hour demand required by the water system or the suggested capacities established by the TCEQ. Pumping capacity should supply the maximum demand with sufficient redundancy to allow for the largest pump at the pump station to be out of service. This is known as firm pumping capacity.

Each pump station or pressure plane must have two or more pumps that have a total capacity of 2.0 gallons per minute per connection, or have a total capacity of at least 1,000 gallons per minute and the ability to meet peak hour demand with the largest pump out of service, whichever is less. If the system provides elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required.

D. WATER DEMAND

The criteria used for projecting the water demands for the water system were derived from the 2013 Feasibility Report. **Table 1.2** shows the projected average day demand by land use type.

Table 1.2 Water Demand by Land Use Type

Land Use Type	Demand gpd/ac	Demand gpd/dwelling unit
Single Family Residential	1,500	360
Commercial	3,000	N/A
Multi-family	3,500	N/A

3. WASTEWATER SYSTEM DESIGN CRITERIA

A. WASTEWATER COLLECTION LINES

Wastewater collection lines shall be sized to maintain the following requirements:

- Capacity for four times the Average Daily Flow (ADF);
- Minimum velocity of 2.0 feet per second.

B. LIFT STATIONS

The Texas Commission on Environmental Quality (TCEQ) has established criteria for the design of lift stations. These criteria address location, volume, controls, flood protection, and ventilation. In addition to meeting the capacity requirements, lift stations will be designed with a six-hour run time.

C. FORCE MAINS

Force main lines shall be sized to maintain the following requirements:

- Capacity for maximum pumping capacity of the lift station;
- Maintain velocity between 2.0 and 6.0 feet per second.

D. WASTEWATER TREATMENT PLANTS (WWTPs)

The criteria used for designing WWTPs is stated in TCEQ Chapter 217. The wastewater demands for the system were derived from the 2013 Feasibility Report. **Table 1.3** shows the projected average day demand by land use type.

Table 1.3 Wastewater Demand by Land Use Type

Land Use Type	Demand gpd/ac	Demand gpd/dwelling unit
Single Family Residential	1,200	300
Commercial	2,500	N/A
Multi-family	3,000	N/A

4. WATER IMPACT FEE CAPITAL IMPROVEMENTS PLAN

The City of Oak Ridge North commissioned Jones|Carter to create their Water Master Plan utilizing Bentley WaterGEMS (v8) in 2011. The purpose of the water master plan is to provide the City with a logical strategy for upgrading and expanding its water distribution system to accommodate future growth and for addressing existing system deficiencies.

Seven (7) projects are determined eligible for recoverable cost through impact fee over the next 10 years. The total cost of these projects is $5,252,500. The projected total recoverable cost through impact fees is $4,193,760. After the credit calculation is completed, **$2,096,880** is recoverable through impact fees serving the 10-year system needs.

A. PROJECT DESCRIPTIONS

1. IMPACT FEE STUDY (1/2)

Jones|Carter will update the impact fees and provide a report and plan to the City.

Project Cost **$22,500**

2. WATERLINE UPSIZING

In order to provide the required capacity in newly developed portions of the City, existing facilities will be upsized.

Project Cost **$493,000**

3. OAK RIDGE COMMERCE PARK WATERLINE EXTENSION (SOUTH)

The waterline extension project includes approximately 350 feet of eight-inch (8") waterline. The waterline will require casing within the Union Pacific Railroad right-of-way, fire hydrant(s), and air relief manhole(s).

Project Cost **$150,000**

4. I-45 WATERLINE EXTENSION (PHASE 2)

The I-45 Waterline Extension Project includes approximately 400 feet of eight-inch (8”) waterline. The waterline will require casing in certain locations, fire hydrant(s), and air relief manhole(s).

Project Cost **$214,000**

5. WATER WELL No. 4

Water Well No. 4 includes the drilling of a new well and a system of controls and monitoring equipment for the well operation.

Project Cost **$1,852,000**

6. **OAK RIDGE COMMERCE PARK WATERLINE EXTENSION (NORTH)**
   The waterline extension project includes approximately 630 feet of 12-inch (12") waterline. The waterline will require casing within the Union Pacific Railroad right-of-way, fire hydrant(s), and air relief manhole(s).

   Project Cost **$250,000**

7. **WATER PLANT No. 2**
   Water Plant No. 2 includes adding two ground storage tanks, pumps, a system of controls and monitoring equipment for the well operation, and a building to house the equipment.

   Project Cost **$2,271,000**

5. WASTEWATER IMPACT FEE CAPITAL IMPROVEMENTS PLAN

Based on city staff's knowledge of the system and the Utility and Economic Feasibly Report completed by Jones|Carter in 2013, Five (5) wastewater projects are determined eligible for recoverable cost through impact fee over the next 10 years. The total cost of these projects is $5,517,500. The projected total recoverable cost through impact fees is $5,517,500. After the credit calculation is completed, **$2,758,750** is recoverable through impact fees serving the 10-year system needs.

A. PROJECT DESCRIPTIONS

1. IMPACT FEE STUDY (1/2)

Jones|Carter will update the impact fees and provide a report and plan to the City.

Project Cost **$22,500**

2. WASTEWATER TREATMENT PLANT CAPACITY PURCHASE

The City will purchase capacity from a neighboring utility district.

Project Cost **$3,000,000**

3. GRAVITY SEWER TRUNKLINE UPSIZE

The Gravity Sewer Trunkline upsizing includes approximately 4,000 feet of gravity sewer ranging in sizes from 8" to 21" and manholes for access.

Project Cost **$950,000**

4. ROBINSON ROAD LIFT STATION

The Robinson Road Lift Station project includes purchasing the land and construction of the lift station, installation of controls, and installation of a generator.

Project Cost **$1,000,000**

5. ROBINSON ROAD FORCE MAIN

The Robinson Road Force Main project includes approximately 13,500 feet of force main, casing within the Union Pacific Railroad Right of Way, air relief manholes, and easement purchases

Project Cost **$545,000**

6. WATER IMPACT FEE CALCULATIONS

Chapter 395 of the Local Government Code defines a service unit as follows, "Service Unit" means a standardized measure of consumption attributable to an individual unit of development calculated in accordance with generally accepted engineering or planning standards and based on historical data and trends applicable to the political subdivision in which the individual unit of development is located during the previous 10 years." Therefore, the City of Oak Ridge North defines a *service unit* as an Equivalent Single Family Connection (ESFC) that consumes the amount of water requiring a standard 5/8" meter. For a development that requires a different size meter, a service unit equivalent is established at a multiplier based on its capacity with respect to the 5/8" meter. The equivalency factor and associated impact fee by meter size is shown in **Table 1.1** earlier in this report**.**

Additional Service Units and Water Impact Fee Calculation

Based on the City's 10-year growth projections and the resulting water demand projections, water service will be required for an additional 1,473 service units. The calculation is as follows:

- A service unit, which is a unit of development that consumes approximately 360 gallons per day (GPD), is an equivalent single family connection that uses a 5/8" meter. **Table 1.4** outlines the future water demand projections and its relationship to the additional service units projected for the next 10-years.

Table 1.4 10-year Additional Service Units Calculation

Year	Average Day Demand (Gallons)	Service Unit Demand (GPD)	Equivalent Single Family Connections (ESFC)
2015	436,000	372	1,171
2020	608,000	369	1,632
2025	976,000	365	2,644
10-year Additional ESFC's			1,473

The City has divided the service area into Area 1, which includes the City Limits and the areas of the Extraterritorial Jurisdiction (ETJ) not in the Tax Increment Reinvestment Zone (TIRZ) and not currently served by other entities; Area 2, which includes the limits of TIRZ within both the City Limits and ETJ, not currently served by other entities; Area 3, which includes Southern Montgomery County Municipal Utility District (SMCMUD), Area 4, which includes Chateau Woods MUD CCN; and Area 5, which includes Eastwood Hills Subdivision CCN. None of the proposed improvements are due to development in Area 1 and Area 3 therefore the impact fee inside Areas 1 and 3 is $0.

Impact fee law allows for a credit calculation to credit back the development community based on the utility revenues or ad valorem taxes that are allocated for paying a portion of future capital improvements. The intent of this credit is to prevent the City from double charging development for future capital improvements via impact fees and utility rates. If the City chooses not to do a financial analysis to determine the credit value, they are required by law to reduce the recoverable cost by 50 percent. The City has chosen not to perform a financial analysis. The maximum recoverable cost for impact fee is shown below.

Table 1.5 Maximum Recoverable Cost

Project	Project Cost ($)	Allowed Recoverable (%)	Allowed Recoverable ($)
Impact Fee Study (1/2)	$ 22,500.00	100%	$ 22,500.00
Waterline Upsizing	$ 493,000.00	100%	$ 493,000.00
ORN Business Park Waterline	$ 150,000.00	100%	$ 150,000.00
I-45 Waterline Extension Ph. 2	$ 214,000.00	100%	$ 214,000.00
Well No. 4	$ 1,852,000.00	60%	$ 1,111,200.00
Commerce Park Waterline	$ 250,000.00	100%	$ 250,000.00
Water Plant No. 2 (GST & BP)	$ 2,271,000.00	86%	$ 1,953,060.00
Total	**$ 5,252,500.00**		**$ 4,193,760.00**

A calculation of the 10-year recoverable costs and the associated impact fee per service unit for Area 2 is as follows:

$$\text{Impact fee per service unit} = \frac{\text{10-year recoverable costs}}{\text{10-year additional service units}} = \frac{\$4,193,760}{1,473}$$

$$\text{50\% Reduction} \qquad \text{50\% x \$2,847} = \$1,424$$

Therefore, the maximum assessable impact fee per service unit is $1,396.

For a development that requires a different size meter, an equivalent single family connection (ESFC) is established at a multiplier based on its capacity with respect to the 5/8" meter. The maximum impact fee that could be assessed for other meter sizes is based on the value shown on **Table 1.6,** ESFC Table for Commonly Used Meters (Water).

Table 1.6 ESFC Table for Commonly Used Meters (Water)

Meter Size	Maximum Continuous Operating Capacity (GPM)	ESFC	Maximum Assessable Water Fee ($/ESFC)
5/8"	15	1.00	$ 1,424.00
3/4"	25	1.67	$ 2,377.00
1"	40	2.67	$ 3,801.00
1 1/2"	120	8.00	$ 11,388.00
2"	170	11.33	$ 16,129.00
3"	350	23.33	$ 33,211.00
4"	600	40.00	$ 56,942.00
6"	1,200	80.00	$ 113,884.00
8"	1,800	120.00	$ 170,825.00

7. WASTEWATER IMPACT FEE CALCULATIONS

Based on the City's 10-year growth projections and the resulting water demand projections, wastewater service will be required for an additional 1,473 service units. For simplicity, the average daily flow for wastewater is compared to the meter size. The calculation is as follows:

- A service unit, which is a unit of development that consumes approximately 300 gallons per day (GPD), is an equivalent single family connection that uses a 5/8" meter. **Table 1.7** outlines the future wastewater demand projections and its relationship to the additional service units projected for the next 10-years.

Table 1.7 10-year Additional Service Units Calculation

Year	Average Day Demand (Gallons)	Service Unit Demand (GPD)	Equivalent Single Family Connections (ESFC)
2015	300,000	256	1,172
2020	444,000	269	1,625
2025	750,000	281	2,645
10-year Additional ESFC's			1,473

The City has divided the service area into Area 1, which includes the City Limits and the areas of the Extraterritorial Jurisdiction (ETJ) not in the Tax Increment Reinvestment Zone (TIRZ) and not currently served by other entities; Area 2, which includes the limits of TIRZ within both the City Limits and ETJ, not currently served by other entities; Area 3, which includes Southern Montgomery County Municipal Utility District (SMCMUD), Area 4, which includes Chateau Woods MUD CCN; and Area 5, which includes Eastwood Hills Subdivision CCN. None of the proposed improvements are due to development in Area 1 and Area 3 therefore the impact fee inside Areas 1 and 3 is $0.

Impact fee law allows for a credit calculation to credit back the development community based on the utility revenues or ad valorem taxes that are allocated for paying a portion of future capital improvements. The intent of this credit is to prevent the City from double charging development for future capital improvements via impact fees and utility rates. If the City chooses not the do a financial analysis to determine the credit value they are required by law to reduce the recoverable cost by 50 percent. The City has chosen not to perform a financial analysis. The maximum recoverable cost for impact fee is shown below.

Table 1.8 Maximum Recoverable Cost

Project	Project Cost ($)	Allowed Recoverable (%)	Allowed Recoverable ($)
Impact Fee Study (1/2)	$ 22,500.00	100%	$ 22,500.00
WWTP Capacity Purchase	$ 3,000,000.00	100%	$ 3,000,000.00
Gravity Sewer Trunkline	$ 950,000.00	100%	$ 950,000.00
R.R. Lift Station	$ 1,000,000.00	100%	$ 1,000,000.00
Robinson Rd. LS FM	$ 545,000.00	100%	$ 545,000.00
Total	**$ 5,517,500.00**		**$ 5,517,500.00**

A breakdown of the 10-year recoverable costs and the associated impact fee per service unit for Area 2 is as follows:

$$\text{Impact fee per service unit} = \frac{\text{10-year recoverable costs}}{\text{10-year additional service units}} = \frac{\$5,517,500}{1,473}$$

$$\text{50\% Reduction} \quad \text{50\% x \$3,746} = \$1,873$$

Therefore, the maximum assessable impact fee per service unit is $1,839.

As stated above, the wastewater demand is compared to meter sizes. For a development that requires a different size meter, an equivalent single family connection (ESFC) is established at a multiplier based on its capacity with respect to the 5/8" meter. The maximum impact fee that could be assessed for other meter sizes is based on the value shown on **Table 1.9,** ESFC Table for Commonly Used Meters (Wastewater).

Table 1.9 ESFC Table for Commonly Used Meters (Wastewater)

Meter Size	Maximum Continuous Operating Capacity (GPM)	ESFC	Maximum Assessable Wastewater Fee ($/ESFC)
5/8"	15	1.00	$ 1,873.00
3/4"	25	1.67	$ 3,128.00
1"	40	2.67	$ 5,001.00
1 1/2"	120	8.00	$ 14,983.00
2"	170	11.33	$ 21,220.00
3"	350	23.33	$ 43,694.00
4"	600	40.00	$ 74,915.00
6"	1,200	80.00	$ 149,830.00
8"	1,800	120.00	$ 224,745.00

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2. Water Project Exhibit
3. Wastewater Project Exhibit
4. Land Use Assumption Map

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    b. Commerce Park Waterline South
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    d. Water Well No. 4
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3. Water Impact Fee Calculations – Areas 2 & 5
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5. Water Impact Fee Calculations – Areas 2 & 4
6. Wastewater Impact Fee Calculations – Areas 2 & 4
7. Water Impact Fee Calculations – Area 2 Only
8. Wastewater Impact Fee Calculations – Area 2 Only
9. Capital Improvement Plan (FY 2015 – FY 2019)

Chateau Woods MUD

Southern Montgomery County MUD

EXIT LAKE WOODLANDS
IH 45 S
DAVID MEMORIAL DR
DAVID VETTER BLVD
EASLEY
TERRI LN
JOHNSON RD
MAIN
BIMMS DR
SIMMONS DR
POST OAK DR
MCCOWN ST
SLEEPY HOLLOW RD
INTERSTATE 45 S
SCHOOL DRIVEWAY
OAK RIDGE SCHOOL RD
PIERSON
CARMITA
SIMONS LN
PINE HAVEN
RHODES
LAKE WOODLANDS DR
LAKE WOODLANDS DR
NANCY LN
VANCY CT
SUSAN CT
SUSAN LN
PINE MANOR DR
LAURA CT
LAURA LN
N HARLAN LN
HEATHER LN
PATSY LN
HEATHER CT
BRENDA LN
WOODSON RD
E PYEATT LN
W PYEATT LN
S PYEATT LN
N HARLAN LN
WJIMMY LN
PATSY LN
JIMMY LN
PAYNE CT
MALL ENTRANCE
BLUEBERRY HILL DR
WELLS LN
PAULA LN
KANE LN
ORTH LN
LANA LN
STARK LN
S HARLAN LN
E LANA LN
LAKE ROBBINS DR
LAKE ROBBINS DR
IH 45 S
EXIT LAKE WOODLANDS
ENT LAKE WOODLANDS
TIMBERLOCH PL
ENT WOODLANDS PKWY
ENT ROBINSON RD
ROBINSON RD
WOODLANDS PKWY
EXIT WOODLANDS PKWY
ENT WOODLANDS PKWY
WICKWOOD
WESTWOOD DR
CASTLEWOOD
LANE LN
RIDGEWOOD DR
WESTWOOD CT
EASTWOOD ST
MAPLEWOOD DR
HILLSIDE DR
HILLSIDE CT
WEDGEWOOD CT
S DEERFOOT CIR
N DEERFOOT CIR
N MILLBEND DR
S MILLBEND DR
IH 45 N
BRUSHWOOD CT
MARSH MILLET CT
GREEN FIELD PL
OAK RIDGE DR
INTERSTATE 45 N
ELMWOOD CT
WOODWAY CT
BAYWOOD CT
NURSERY RD
BUDDE RD
SAGEWOOD
HEATHERWOOD DR
INTERSTATE 45 N
OAK HILL DR
E OAK HILL DR
JASON CT
JEREMY CT
JULES CT
TODD CT
TERI CT
TODD DR
GEFFERT WRIGHT LN
OAK RIDGE GROVE DR
OAK RIDGE GROVE CIR
OAKHURST DR
BASSWOOD DR
SPRING PINES DR
WOODGLEN DR
LEAFY WOOD DR
PRESSWOOD DR
OAKRIDGE FOREST LN
W CLADY DR
PATEWAY CT
ALANA LN
HANNA RD
CURRY RD
HILLVIEW DR
HILLRIDGE DR
COX RD
BLAIR CROSSING
BLAIR RD
DARBY LOOP
FUSSEL RD
DARBY LOOP
COMMERCE OAKS DR
OAK RIDGE PARK DR
INDUSTRIAL WAY
ROBINSON RD
ELDER RD
PINEWOOD DR
CACTUS DR
KERR LN
SUNSET LN
CHATEAU WOODS PKWY
WESTGATE DR
SONGWOOD
TALLOW DR
SPRINGWOOD DR
CHATEAU LN
LAKEWOOD DR
JEWEL CT
TATE CT
WOOD FERN CT
FOREST GLADE CT
STONE GATE DR
FAIRVIEW DR
CARAQUET DR
1
2
3
4
5

City of Oak Ridge North City Limits
City of Oak Ridge North ETJ
TIRZ Boundary
Area 1 - City Limits and ETJ Outside TIRZ
Area 2 - City Limits and ETJ Within TIRZ
Area 3 - MUD Boundary
Area 4 - Chateau Woods MUD CCN
Area 5 - Eastwood Hills Subdivision CCN

N W E S
1 inch equals 1,000 feet
0 500 1,000

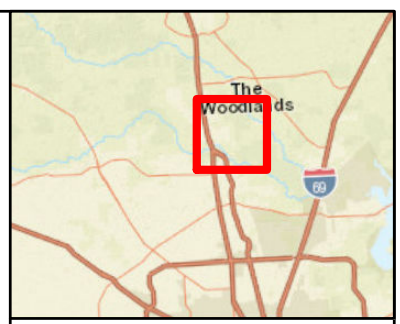
Disclaimer:
This product is offered for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property, governmental and/or political boundaries or related facilities to said boundary. No express warranties are made by Jones & Carter, Inc. concerning the accuracy completeness, reliability, or usability of the information included within this exhibit.
Coordinate System: NAD 83 TX CENTRAL 4203 FEET
Vertical Datum: NAVD 1988 - 2001 Adjustment

JONES | CARTER
Texas Board of Professional Engineers Registration No. F-439

OAK RIDGE NORTH Texas

AREA EXHIBIT

CITY OF OAK RIDGE NORTH
MONTGOMERY COUNTY, TEXAS



VICINITY MAP
Scale: 1 inch equals 20 miles

Path: C:\GIS\Districts\CityOfORN\PRJTS\TIRZ_Area_Ex4_11x17.mxd Project Number: 00431-0900-16 Date: 7/26/2016 User Name: CEH

Chateau Woods MUD

Commerce Park Extension North

Commerce Park Extension South

Waterline Upsizing

I-45 Extension Phase II

Southern Montgomery County MUD

NOTE:
Water Plant No. 2 and Water Well No. 4 locations are to be determined.

- Project Location
- City of Oak Ridge North City Limits
- City of Oak Ridge North ETJ
- TIRZ Boundary
- Area 1 - City Limits and ETJ Outside TIRZ
- Area 2 - City Limits and ETJ Within TIRZ
- Area 3 - MUD Boundary
- Area 4 - Chateau Woods MUD CCN
- Area 5 - Eastwood Hills Subdivision CCN

N W E S

1 inch equals 1,000 feet
0 500 1,000

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Coordinate System: NAD 83 TX CENTRAL 4203 FEET
Vertical Datum: NAVD 1988 - 2001 Adjustment

JONES | CARTER
Texas Board of Professional Engineers Registration No. F-439

OAK RIDGE NORTH Texas

WATER PROJECTS EXHIBIT

CITY OF OAK RIDGE NORTH

MONTGOMERY COUNTY, TEXAS

VICINITY MAP
Scale: 1 inch equals 20 miles

Path: C:\GIS\Districts\CityOfORN\PRJTS\TIRZ_Area_Ex5_11x17.mxd Project Number: 00431-0900-16 Date: 7/26/2016 User Name: CEH

Chateau Woods MUD

Robinson Road Force Main

Robinson Road Lift Station

Gravity Sewer Trunkline Upsizing

Robinson Road Force Main

Southern Montgomery County MUD

NOTE:
Sanitary Sewer capacity will be purchased from Southern Montgomery County MUD.

- Project Location
- City of Oak Ridge North City Limits
- City of Oak Ridge North ETJ
- TIRZ Boundary
- Area 1 - City Limits and ETJ Outside TIRZ
- Area 2 - City Limits and ETJ Within TIRZ
- Area 3 - MUD Boundary
- Area 4 - Chateau Woods MUD CCN
- Area 5 - Eastwood Hills Subdivision CCN

1 inch equals 1,000 feet
0 500 1,000

Disclaimer:
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Coordinate System: NAD 83 TX CENTRAL 4203 FEET
Vertical Datum: NAVD 1988 - 2001 Adjustment

JONES | CARTER
Texas Board of Professional Engineers Registration No. F-439

OAK RIDGE NORTH Texas

WASTEWATER PROJECTS EXHIBIT

CITY OF OAK RIDGE NORTH

MONTGOMERY COUNTY, TEXAS

VICINITY MAP
Scale: 1 inch equals 20 miles

Path: C:\GIS\Districts\CityOfORN\PRJTS\TIRZ_Area_Ex6_11x17.mxd Project Number: 00431-0900-16 Date: 7/26/2016 User Name: CEH

WESTGATE
SONGWOOD
SPRINGWOOD
COMMERCE OAKS
HANNA
OAK RIDGE PARK
INDUSTRIAL
ELDER
ROBINSON
CURRY
FUSSEL
DARBY
ALANA
HILLVIEW
OAK HILL
HILLRIDGE
WOODCROFT
EASTWOOD HILLS
SERENITY OAKS
JEREMY
COX
JULES
TODD
BLAIR CROSSING
BLAIR

***This land use plan was developed by Jones & Carter, Inc. for feasibility purposes only and is not a determination of actual development patterns or land uses**

*Aerial Imagery flown January 2012

N
W E
S

1 inch equals 500 feet
0 250 500
Feet

Disclaimer:
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Coordinate System: NAD 83 TX S CENTRAL 4204 FEET
Vertical Datum: NAVD 1988

JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6335 Gulfton Dr., Suite 100 Houston, Texas 77081 (713) 777-5337

EXHIBIT D
POTENTIAL LAND USES ULTIMATE PHASE
OAK RIDGE NORTH, MONTGOMERY COUNTY, TEXAS

LEGEND

- Commercial (67.0 ac)
- Mixed Use (32.0 ac)
- Light Manf. (72.6 ac)
- S.F. 9,000 SF Min. (228.2 ac)
- TND (46.2 ac)
- City Limits
- City ETJ

Existing Floodzones

- Shaded Zone X
- Zone AE
- Floodway

45

VICINITY MAP
Scale: 1 inch equals 10 miles

C:\GIS\SpecialProjects\RAArd\Oak Ridge North\Prelim_Landuse_Study_Alt_B_11x17.mxd

APPENDIX 1 - All Areas inclusive of ETJ & TIRZ (Not Presently Served by Others)
City of Oak Ridge North
Water Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	436,000	1,171	436,000	1,171	436,000	1,171
Demand Area 2, 4, & 5	0	0	172,000	478	530,280	1,473
Total Demand for City	436,000	1,171	608,000	1,649	966,280	2,644
				368.758003		365.461422

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Well A1	1,170,000	3,250	1,170,000	3,250	1,170,000	3,250
Storage A1	630,000	1,750	630,000	1,750	630,000	1,750
Well A2	900,000	2,500	900,000	2,500	900,000	2,500
Storage A2	427,000	1,186	630,000	1,750	630,000	1,750

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
Waterline Upsizing		493,000				493,000	0	100
ORN Commerce Park South	150,000					150,000	0	100
I-45 Waterline Extension Ph. 2		214,000				214,000	0	100
Well No. 4			1,852,000			1,852,000	0	60
ORN Commerce Park North		250,000				250,000	0	100
Water Plant No. 2 (GST & BP)		2,271,000				2,271,000	0	86
Summation	**$172,500**	**$3,228,000**	**$1,852,000**			**$5,252,500**	**$0**	**$4,193,760**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2, 4, & 5	$7.91	$2,847.09	$3.95	$1,423.54

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$1,424
3/4"	25	1.67	$2,377
1"	40	2.67	$3,801
1 1/2"	120	8.00	$11,388
2"	170	11.33	$16,129
3"	350	23.33	$33,211
4"	600	40.00	$56,942
6"	1,200	80.00	$113,884
8"	1,800	120.00	$170,825

OAK RIDGE NORTH WATER IMPACT FEE ANALYSIS
APPENDIX 1A
COST ESTIMATE
WATERLINE UPSIZING
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$17,400		$17,400
2	8 to 12" Waterline Pipe Burst	LF	2,800	88		246,400
3	Site Restoration	LS	1	15,000		15,000
4	Valve Replacement	EA	4	2,500		10,000
5	Fire Hydrant Connections	EA	8	1,150		9,200
6	Wet Connection to Existing WL	EA	2	5,000		10,000
7	SWPPP	LS	1	5,000		5,000
8	Traffic Control	LS	1	10,000		10,000
9	Easement Purchase	LS	1	50,000		50,000
				Subtotal		$373,000
				Contingencies	15%	$56,000
				Engineering	15%	$64,000
				TOTAL		**$493,000**

Notes:
(1) This estimate represents my best judgment as a design professional familiar with the construction industry. Jones & Carter, Inc. has no control over the cost of labor, materials, or equipment; over the Contractor's methods of determining bid prices; or over competitive bidding or market conditions. Accordingly, we cannot and do not guarantee that bids will not vary from this estimate.

OAK RIDGE NORTH WATER IMPACT FEE ANALYSIS
APPENDIX 1B
COST ESTIMATE
COMMERCE PARK WATERLINE SOUTH
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$4,800		$4,800
2	8" Waterline	LF	350	70		24,500
3	8" Restrained Joint Waterline	LF	50	160		8,000
4	16" Steel Casing (Trenchless)	LF	150	275		41,300
5	Wet Connection to Existing	LF	2	2,000		4,000
6	Trench Safety	LF	200	2		400
7	Railroad Permit	LS	1	15,000		15,000
8	SWPPP	LS	1	5,000		5,000
9	Traffic Control	LS	1	10,000		10,000
				Subtotal		$113,000
				Contingencies	15%	$17,000
				Engineering	15%	$20,000
				TOTAL		**$150,000**

Notes:
(1) This estimate represents my best judgment as a design professional familiar with the construction industry. Jones & Carter, Inc. has no control over the cost of labor, materials, or equipment; over the Contractor's methods of determining bid prices; or over competitive bidding or market conditions. Accordingly, we cannot and do not guarantee that bids will not vary from this estimate.

OAK RIDGE NORTH WATER IMPACT FEE ANALYSIS
APPENDIX 1C
COST ESTIMATE
I-45 WATERLINE EXTENSION PHASE II
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$7,400		$7,400
2	12" Waterline	LF	335	90		30,200
3	12" Restrained Joint Waterline	LF	50	180		9,000
4	20" Steel Casing (Trenchless)	LF	150	300		45,000
5	Wet Connection to Existing	LF	1	5,000		5,000
6	Trench Safety	LF	185	2		400
7	SWPPP	LS	1	5,000		5,000
8	Traffic Control	LS	1	10,000		10,000
9	Easement Purchase	LS	1	50,000		50,000
				Subtotal		$162,000
				Contingencies	15%	$24,000
				Engineering	15%	$28,000
				TOTAL		**$214,000**

Notes:
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OAK RIDGE NORTH WATER IMPACT FEE ANALYSIS
APPENDIX 1D
COST ESTIMATE
WATER WELL No. 4
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$150,000		$150,000
2	1,500 GPM Water Well	LS	1	950,000		$950,000
3	Electrical, Scada	LS	1	300,000		300,000
				Subtotal		$1,400,000
				Contingencies	15%	$210,000
				Engineering	15%	$242,000
				TOTAL		**$1,852,000**

Notes:
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OAK RIDGE NORTH WATER IMPACT FEE ANALYSIS
APPENDIX 1E
COST ESTIMATE
COMMERCE PARK WATERLINE NORTH
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$12,100		$12,100
2	12" Waterline	LF	600	90		54,000
3	12" Restrained Joint Waterline	LF	150	180		27,000
4	20" Steel Casing (Trenchless)	LF	150	300		45,000
5	Wet Connection to Existing	LF	1	5,000		5,000
6	Vacuum/Air Relief Valve Manhole	LF	1	10,000		10,000
7	Railroad Permit	LS	1	15,000		15,000
8	Trench Safety	LF	450	2		900
9	SWPPP	LS	1	5,000		5,000
10	Traffic Control	LS	1	15,000		15,000
				Subtotal		$189,000
				Contingencies	15%	$28,000
				Engineering	15%	$33,000
				TOTAL		**$250,000**

Notes:
(1) This estimate represents my best judgment as a design professional familiar with the construction industry. Jones & Carter, Inc. has no control over the cost of labor, materials, or equipment; over the Contractor's methods of determining bid prices; or over competitive bidding or market conditions. Accordingly, we cannot and do not guarantee that bids will not vary from this estimate.

OAK RIDGE NORTH WATER IMPACT FEE ANALYSIS
APPENDIX 1F
COST ESTIMATE
WATER PLANT No. 2
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$82,000		$82,000
2	Ground Storage Tank w/ found.	LS	2	250,000		500,000
3	Controls, Control Bldg, Scada, Electrical	LS	1	400,000		400,000
4	Hydopnuematic tank (utilize existing), Pumps, Generator	LS	1	450,000		450,000
5	Disenfection System	LS	1	15,000		15,000
6	Fencing	LS	1	20,000		20,000
7	Sitework & Piping	LS	1	100,000		100,000
8	Land Purchase	LS	1	150,000		150,000
				Subtotal		$1,717,000
				Contingencies	15%	$258,000
				Engineering	15%	$296,000
				TOTAL		**$2,271,000**

Notes:
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APPENDIX 2 - All Areas inclusive of ETJ & TIRZ (Not Presently Served by Others)
City of Oak Ridge North
Sewer Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	300,000	1,172	300,000	1,172	300,000	1,172
Demand Area 2, 4, & 5	0	0	143,400	478	441,900	1,473
Total Demand for City	300,000	1,172	443,400	1,650	741,900	2,645
				268.727273		280.491493

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
WWTP Capacity A1	300,000	1,000	300,000	1,000	300,000	1,000
WWTP Capacity A2	0	0	441,900	1,473	441,900	1,473
Gravity Sewer Trunkline A2	0	0	441,900	1,473	441,900	1,473
Lift Station A2	0	0	441,900	1,473	441,900	1,473

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
WWTP Capacity Purchase		3,000,000				3,000,000	0	100
Gravity Sewer Trunkline		950,000				950,000	0	100
R.R. Lift Station			1,000,000			1,000,000	0	100
Robinson Rd. LS FM			545,000			545,000	0	100
Summation	**$22,500**	**$3,950,000**	**$1,545,000**			**$5,517,500**	**$0**	**$5,517,500**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2, 4, & 5	$12.49	$3,745.76	$6.24	$1,872.88

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$1,873
3/4"	25	1.67	$3,128
1"	40	2.67	$5,001
1 1/2"	120	8.00	$14,983
2"	170	11.33	$21,220
3"	350	23.33	$43,694
4"	600	40.00	$74,915
6"	1200	80.00	$149,830
8"	1,800	120.00	$224,745

OAK RIDGE NORTH SEWER IMPACT FEE ANALYSIS
APPENDIX 2A
DETAILED COST ESTIMATE
GRAVITY SEWER TRUNKLINE UPSIZE
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$30,600		$30,600
2	8" to 12" Pipe Burst	LF	1,925	55		105,900
3	18" to 21" Pipe Burst	LF	1,275	185		235,900
4	21" to 24" Pipe Burst	LF	825	225		185,600
5	Sanitary Sewer Manhole Rehabilitation	EA	12	3,500		42,000
6	Service Connections	EA	78	1,000		78,000
7	By-Pass Pumping	LS	1	25,000		25,000
8	SWPPP	LS	1	5,000		5,000
9	Traffic Control	LS	1	10,000		10,000
				Subtotal		$718,000
				Contingencies	15%	$108,000
				Engineering	15%	$124,000
				TOTAL		**$950,000**

Notes:
(1) This estimate represents my best judgment as a design professional familiar with the construction industry. Jones & Carter, Inc. has no control over the cost of labor, materials, or equipment; over the Contractor's methods of determining bid prices; or over competitive bidding or market conditions. Accordingly, we cannot and do not guarantee that bids will not vary from this estimate.

OAK RIDGE NORTH SEWER IMPACT FEE ANALYSIS
APPENDIX 2B
COST ESTIMATE
ROBINSON ROAD LIFT STATION FORCE MAIN
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$20,000		$20,000
2	Force Main	LF	3,000	65		195,000
3	Restrained Joint Force Main	LF	200	130		26,000
4	Additional Cost for Trenchless Construction	LF	200	150		30,000
5	16" Steel Casing (Trenchless)	LF	150	275		41,300
6	Trench Safety	LF	2,650	2		5,300
7	Easement Purchase	LS	1	50,000		50,000
8	Railroad Permit	LS	1	15,000		15,000
9	SWPPP	LS	1	15,000		15,000
10	Traffic Control	LS	1	15,000		15,000
				Subtotal		$412,600
				Contingencies	15%	$61,400
				Engineering	15%	$71,000
				TOTAL		**$545,000**

Notes:
(1) This estimate represents my best judgment as a design professional familiar with the construction industry. Jones & Carter, Inc. has no control over the cost of labor, materials, or equipment; over the Contractor's methods of determining bid prices; or over competitive bidding or market conditions. Accordingly, we cannot and do not guarantee that bids will not vary from this estimate.

OAK RIDGE NORTH SEWER IMPACT FEE ANALYSIS
APPENDIX 2C
COST ESTIMATE
ROBINSON ROAD LIFT STATION
August 1, 2016

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST		TOTAL COST
1	Move-in and Start-up	LS	1	$36,000		$36,000
2	Lift Station and Generator	LS	1	650,000		650,000
3	Land Purchase	LS	1	50,000		50,000
4	SWPPP	LS	1	15,000		15,000
5	Traffic Control	LS	1	5,000		5,000
				Subtotal		$756,000
				Contingencies	15%	$113,000
				Engineering	15%	$131,000
				TOTAL		**$1,000,000**

Notes:

(1) This estimate represents my best judgment as a design professional familiar with the construction industry. Jones & Carter, Inc. has no control over the cost of labor, materials, or equipment; over the Contractor's methods of determining bid prices; or over competitive bidding or market conditions. Accordingly, we cannot and do not guarantee that bids will not vary from this estimate.

APPENDIX 3 - Areas 2 and 5
City of Oak Ridge North
Water Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	436,000	1,171	436,000	1,171	436,000	1,171
Demand Area 2 & 5	0	0	172,000	478	432,780	1,202
Total Demand for City	436,000	1,171	608,000	1,649	868,780	2,373
				368.758003		366.084697

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Well A1	1,170,000	3,250	1,170,000	3,250	1,170,000	3,250
Storage A1	630,000	1,750	630,000	1,750	630,000	1,750
Well A2	900,000	2,500	900,000	2,500	900,000	2,500
Storage A2	427,000	1,186	630,000	1,750	630,000	1,750

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
Waterline Upsizing		493,000				493,000	0	100
ORN Commerce Park South	150,000					150,000	0	100
I-45 Waterline Extension Ph. 2		214,000				214,000	0	100
Well No. 4			1,852,000			1,852,000	0	48
ORN Commerce Park North		250,000				250,000	0	100
Water Plant No. 2 (GST & BP)		2,271,000				2,271,000	0	69
Summation	**$172,500**	**$3,228,000**	**$1,852,000**			**$5,252,500**	**$0**	**$3,580,134**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2 & 5	$8.27	$2,978.07	$4.14	$1,489.03

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$1,489
3/4"	25	1.67	$2,487
1"	40	2.67	$3,976
1 1/2"	120	8.00	$11,912
2"	170	11.33	$16,871
3"	350	23.33	$34,739
4"	600	40.00	$59,561
6"	1,200	80.00	$119,123
8"	1,800	120.00	$178,684

APPENDIX 4 - Areas 2 and 5
City of Oak Ridge North
Sewer Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	300,000	1,172	300,000	1,172	300,000	1,172
Demand Area 2 & 5	0	0	143,400	478	361,500	1,205
Total Demand for City	300,000	1,172	443,400	1,650	661,500	2,377
				268.727273		278.291965

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
WWTP Capacity A1	300,000	1,000	300,000	1,000	300,000	1,000
WWTP Capacity A2	0	0	441,900	1,473	441,900	1,473
Gravity Sewer Trunkline A2	0	0	441,900	1,473	441,900	1,473
Lift Station A2	0	0	441,900	1,473	441,900	1,473

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
WWTP Capacity Purchase		3,000,000				3,000,000	0	81.80583842
Gravity Sewer Trunkline		950,000				950,000	0	81.80583842
R.R. Lift Station			1,000,000			1,000,000	0	81.80583842
Robinson Rd. LS FM			545,000			545,000	0	81.80583842
Summation	**$22,500**	**$3,950,000**	**$1,545,000**			**$5,517,500**	**$0**	**$4,517,731**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2 & 5	$12.50	$3,749.15	$6.25	$1,874.58

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$1,875
3/4"	25	1.67	$3,131
1"	40	2.67	$5,005
1 1/2"	120	8.00	$14,997
2"	170	11.33	$21,239
3"	350	23.33	$43,734
4"	600	40.00	$74,983
6"	1200	80.00	$149,966
8"	1,800	120.00	$224,949

APPENDIX 5 - Areas 2 and 4
City of Oak Ridge North
Water Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	436,000	1,171	436,000	1,171	436,000	1,171
Demand Area 2 & 4	0	0	172,000	478	460,644	1,280
Total Demand for City	436,000	1,171	608,000	1,649	896,644	2,451
				368.758003		365.892515

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Well A1	1,170,000	3,250	1,170,000	3,250	1,170,000	3,250
Storage A1	630,000	1,750	630,000	1,750	630,000	1,750
Well A2	900,000	2,500	900,000	2,500	900,000	2,500
Storage A2	427,000	1,186	630,000	1,750	630,000	1,750

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
Waterline Upsizing		493,000				493,000	0	100
ORN Commerce Park South	150,000					150,000	0	100
I-45 Waterline Extension Ph. 2		214,000				214,000	0	100
Well No. 4			1,852,000			1,852,000	0	51
ORN Commerce Park North		250,000				250,000	0	100
Water Plant No. 2 (GST & BP)		2,271,000				2,271,000	0	73
Summation	**$172,500**	**$3,228,000**	**$1,852,000**			**$5,252,500**	**$0**	**$3,737,915**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2 & 4	$8.11	$2,921.23	$4.06	$1,460.62

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$1,461
3/4"	25	1.67	$2,439
1"	40	2.67	$3,900
1 1/2"	120	8.00	$11,685
2"	170	11.33	$16,549
3"	350	23.33	$34,076
4"	600	40.00	$58,425
6"	1,200	80.00	$116,849
8"	1,800	120.00	$175,274

APPENDIX 6 - Areas 2 and 4
City of Oak Ridge North
Sewer Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	300,000	1,172	300,000	1,172	300,000	1,172
Demand Area 2 & 4	0	0	143,400	478	385,680	1,286
Total Demand for City	300,000	1,172	443,400	1,650	685,680	2,458
				268.727273		279.003906

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
WWTP Capacity A1	300,000	1,000	300,000	1,000	300,000	1,000
WWTP Capacity A2	0	0	385,680	1,286	385,680	1,286
Gravity Sewer Trunkline A2	0	0	385,680	1,286	385,680	1,286
Lift Station A2	0	0	385,680	1,286	385,680	1,286

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
WWTP Capacity Purchase		3,000,000				3,000,000	0	100
Gravity Sewer Trunkline		950,000				950,000	0	100
R.R. Lift Station			1,000,000			1,000,000	0	100
Robinson Rd. LS FM			545,000			545,000	0	100
Summation	**$22,500**	**$3,950,000**	**$1,545,000**			**$5,517,500**	**$0**	**$5,517,500**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2 & 4	$14.31	$4,291.77	$7.15	$2,145.89

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$2,146
3/4"	25	1.67	$3,584
1"	40	2.67	$5,730
1 1/2"	120	8.00	$17,167
2"	170	11.33	$24,313
3"	350	23.33	$50,064
4"	600	40.00	$85,835
6"	1200	80.00	$171,671
8"	1,800	120.00	$257,506

APPENDIX 7 - Area 2
City of Oak Ridge North
Water Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	436,000	1,171	436,000	1,171	436,000	1,171
Demand Area 2	0	0	172,000	478	363,144	1,009
Total Demand for City	436,000	1,171	608,000	1,649	799,144	2,180
				368.758003		366.624664

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Well A1	1,170,000	3,250	1,170,000	3,250	1,170,000	3,250
Storage A1	630,000	1,750	630,000	1,750	630,000	1,750
Well A2	900,000	2,500	900,000	2,500	900,000	2,500
Storage A2	427,000	1,186	630,000	1,750	630,000	1,750

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
Waterline Upsizing		493,000				493,000	0	100
ORN Commerce Park South	150,000					150,000	0	100
I-45 Waterline Extension Ph. 2		214,000				214,000	0	100
Well No. 4			1,852,000			1,852,000	0	40
ORN Commerce Park North		250,000				250,000	0	100
Water Plant No. 2 (GST & BP)		2,271,000				2,271,000	0	58
Summation	**$172,500**	**$3,228,000**	**$1,852,000**			**$5,252,500**	**$0**	**$3,185,817**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2	$8.77	$3,158.24	$4.39	$1,579.12

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$1,579
3/4"	25	1.67	$2,637
1"	40	2.67	$4,216
1 1/2"	120	8.00	$12,633
2"	170	11.33	$17,891
3"	350	23.33	$36,841
4"	600	40.00	$63,165
6"	1,200	80.00	$126,329
8"	1,800	120.00	$189,494

APPENDIX 8 - Area 2
City of Oak Ridge North
Sewer Impact Fee Analysis
Updated: 8/1/16

	2015		2020		2025	
	ADF	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
Demand Area 1 & 3	300,000	1,172	300,000	1,172	300,000	1,172
Demand Area 2	0	0	143,400	478	307,680	1,026
Total Demand for City	300,000	1,172	443,400	1,650	607,680	2,198
				268.727273		276.51984

	2015		2020		2025	
Capacities	**ADF**	**ESFC**	**ADF**	**ESFC**	**ADF**	**ESFC**
WWTP Capacity A1	300,000	1,000	300,000	1,000	300,000	1,000
WWTP Capacity A2	0	0	307,680	1,026	307,680	1,026
Gravity Sewer Trunkline A2	0	0	307,680	1,026	307,680	1,026
Lift Station A2	0	0	307,680	1,026	307,680	1,026

Project	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Total**	**% Allowed A1**	**% Allowed A2**
Impact Fee Study (1/2)	22,500					22,500	0	100
WWTP Capacity Purchase		3,000,000				3,000,000	0	100
Gravity Sewer Trunkline		950,000				950,000	0	100
R.R. Lift Station			1,000,000			1,000,000	0	100
Robinson Rd. LS FM			545,000			545,000	0	100
Summation	**$22,500**	**$3,950,000**	**$1,545,000**			**$5,517,500**	**$0**	**$5,517,500**

	w/o Reduction		w/ 50% Reduction	
Impact Fee Calc.	**$/Gal ADF**	**$/ESFC ADF**	**$/Gal ADF**	**$/ESFC ADF**
Area 1 & 3	$0.00	$0.00	$0.00	$0.00
Area 2	$17.93	$5,379.78	$8.97	$2,689.89

ESFC Table

Water Meter Size	**Max Flow**	**ESFC**	**$/ESFC**
5/8"	15	1.00	$2,690
3/4"	25	1.67	$4,492
1"	40	2.67	$7,182
1 1/2"	120	8.00	$21,519
2"	170	11.33	$30,476
3"	350	23.33	$62,755
4"	600	40.00	$107,596
6"	1200	80.00	$215,191
8"	1,800	120.00	$322,787

Capital Improvement Plan
FY 2015 - FY 2019
FY 2016 Budget - August 31, 2015

		FY 2015 Budget	FY 2015 Est.	FY 2016	FY 2017	FY 2018	FY 2019	Total
(1)	**Beg. Balance - Capital Improvement Fund**		2,345,848	2,320,869	780,304	566,600	716,522	
(2)	2012 C.O.s (Restricted)		712,355	646,863	-	-	-	
(3)	2013 TAN		1,082,430	-	-	-	-	
(4)	New Issuance* (restricted)		-	-	2,300,000	-	-	
(5)	EDC Funds		981,539	676,539	304,539	429,539	554,539	
(6)	SJRA Contributions (restricted)		484,508	-	-	-	-	
	Incoming Funds							
	Estimated Transfers from General Fund		1,067,936	400,000	400,000	400,000	400,000	
	Estimated Transfers from W/S Fund		810,527	575,000	575,000	575,000	575,000	
	Estimated Transfers from W/S Fund - Depreciation		-	-	-	-	-	
	Estimaed Transfers for Impact Fees		-	10,000	10,000	10,000	10,000	
	Transfers from Park Revenues		-	25,000	50,000	25,000	-	
	Reimbursement from County for Engineering Fees		-	-	370,000	-	-	
	Total		**7,485,143**	**4,654,272**	**4,789,843**	**2,006,139**	**2,256,061**	
	Water/Sewer System Projects							
(1)	Impact Fee Study	25,000	25,000	-	-	-	-	25,000
(1)(2)	Water Plant	550,000	550,000	-	-	-	-	550,000
(2)	Water Line Replacement	-	-	426,863				426,863
(1)(5)	ORN Business Park (EDC)	250,000	250,000	-	-	-	-	250,000
(1)(5)	I-45 Waterline Extension (Phase I)	-	4,500	-	-	-	-	4,500
(1)(5)	I-45 Waterline Extension (Phase II - to Paula) (EDC)	135,000	-	147,000	-	-	-	147,000
(4)	Well #2 Replacement*	-	-	-	2,300,000	-	-	2,300,000
(1)(2)(5)	Commerce Park Waterline Loop	180,000	180,000	220,000	-	-	-	400,000
(1)(5)	Water Distribution Site (Booster Pumps) (East of Hanna)	66,000	-	66,000	-	-	-	66,000
(1)	SMCMUD Capital Costs	125,000	5,319	125,000	125,000	125,000	125,000	505,319
(1)	Water/Wastewater Line Annual Replacement Program	50,000	25,000	50,000	50,000	50,000	50,000	225,000
(1)(5)	Master Meter Commercial Replacement Program	60,000	60,000	60,000	60,000	-	-	180,000

Capital Improvement Plan
FY 2015 - FY 2019
FY 2016 Budget - August 31, 2015

		FY 2015 Budget	FY 2015 Est.	FY 2016	FY 2017	FY 2018	FY 2019	Total
	Drainage Projects							
(1)(5)	Regional Detention (EDC)	-	-	250,000	-	-	-	250,000
(1)	Storm Drain Improvements (South of Robinson)	-	-	220,000	50,000	50,000	50,000	370,000
(1)	Channel Improvements (10 year program)	-	-	100,000	100,000	100,000	100,000	400,000
(1)	Master Drainage Plan	300,000	300,000	-	-	-	-	300,000
	Streets, Sidewalks, Parks Projects							
(3)	Street Overlay	1,324,876	1,324,876	-	-	-	-	1,324,876
(1)	Robinson Road Engineering	590,000	142,500	-	447,500	-	-	590,000
(1)	Intersection/Street Annual Improvement Program	223,000	223,000	50,000	50,000	50,000	50,000	423,000
(1)	Thoroughfare Plan	-	-	25,000	-	-	-	25,000
(1)	Speed Cushions	15,000	15,000	-	-	-	-	15,000
(1)	Teddy Bear Park Improvements			40,000	-	-	-	40,000
(1)(5)	M E Park Renovations & Improvements	-	-	100,000	-	-	-	100,000
(1)(5)	Woodson Rd Sidewalks	165,000	34,000	181,000	-	-	-	215,000
	Equipment Purchases							
(1)	Equipment Replacement	-	-	25,000	25,000	25,000	25,000	100,000
(1)	Police Department Vehicles & Equipment **	68,000	61,272	130,000	80,000	80,000	80,000	431,272
(1)	Public Works Vehicles & Equipment ***	41,100	34,818	109,300	50,000	50,000	50,000	294,118
(1)	City Hall Phone System	-	-	23,908	-	-	-	23,908

Capital Improvement Plan
FY 2015 - FY 2019
FY 2016 Budget - August 31, 2015

		FY 2015 Budget	FY 2015 Est.	FY 2016	FY 2017	FY 2018	FY 2019	Total
	Construction Projects							
(1)	Parking Lot behind City Hall	15,000	15,000	-	-	-	-	15,000
(1)	Public Works Building on new property	-	-	-	330,000	-	-	330,000
	Miscellaneous							
(1)	Contingency	160,000	-	250,000	250,000	250,000	250,000	1,000,000
(1)	City Website	25,000	29,280	-	-	-	-	29,280
(5)	Land Purchases	500,000	600,000	700,000	-	-	-	1,300,000
(1)(5)	City Branding	300,000	32,000	318,000	-	-	-	350,000
(1)	Transfer to W/S Fund - Dir. Of PW, Eng. Tech	58,524	54,306	67,357	68,704	70,078	71,480	331,925
	TOTAL CAPITAL EXPENDITURES	**5,226,500**	**3,965,871**	**3,684,428**	**3,986,204**	**850,078**	**851,480**	
	Ending Balance - Capital Improvement Fund		**2,320,869**	**780,304**	**566,600**	**716,522**	**840,042**	
	Ending Balance - All Funding Sources		**3,519,272**	**969,843**	**803,639**	**1,156,061**	**1,404,581**	

*reviewed every year to see if project is needed, otherwise it is pushed back further

**PD 2016 vehicles & equipment: 3x 2015 Ford Interceptor, fully loaded (replacement vehicles)

***PW 2016 vehicles & equipment:
Kubota RTV X900 (replacement equipment)
Tire changing machine
Vehicle brake lathe
2015 Ford F150 (replacement vehicle)
2015 Ford F550 (replacement vehicle)

Capital Projects and Items Under Consideration:
Teddy Bear Park MUD Building Renovations

TWDB Funds: The City currently has $495,000 in unused TWDB C.O. funds.
These funds may be used for a TWDB approved project or used to buy down the City's TWDB debt.