NEWTON CENTRAL APPRAISAL DISTRICT

AGRICULTURE, TIMBER AND RURAL LAND

VALUATION REPORT

2019 APPRAISAL YEAR

SUMMARY

OPEN-SPACE VALUATION

Agriculture Values for 2019 were calculated after pasture rental information was obtained from the Agricultural Advisory Board. Rents of $20.00 for pasture land were used. The capitalization rate furnished by the State Comptroller's office was 10%. This capitalization rate is set in Section 23.53 of the Property Tax Code. The Manual for Appraisal of Agriculture was used to calculate the productivity value. The resulting values for 2019 for pasture are the same as 2018. There are approximately 30,200 acres in pasture land.

TIMBER VALUATION

To calculate the 2019 Timber Productivity Values, we used the Timber Production Value Spreadsheet and Capitalization Rate of 7.47% that we received from the State Comptroller's office. This Capitalization Rate is set in Section 23.74 of the Property Tax Code. The 2016 cap rate was 7.42%

Management costs have remained level. Futhermore, the Capitalization Rate for 2019 increased .05%

Overall, there is approximately 548,000 acres in Timber use. Timber is the primary industry in Newton County. We also have the best soil in the state to produce and grow Pine trees.

The Texas Property Tax Division contracts with the Texas Forest Service to develop the management and production costs the P.T.D. uses to determine value. Changes to growth rates and other factors based on on-going updates to the Forest Inventory and Analysis are conducted by the U.S. Forest Service.

MODEL

LAND VALUE MODEL

VALUE = ACRES X UNIT PRICE .... X SIZE ADJ.....X ROAD FACTOR

AG VALUE MODEL

$$\text{VALUE} = \frac{\text{RENT... - EXPENSES... - TAX RATE..}}{\text{CAP RATE}}$$

TIMBER VALUE MODEL

$$\text{VALUE} = \frac{\text{(PRICE PER ACRE X GROWTH RATES X SOIL TYUPES) – COST}}{\text{CAP RATE}}$$

2019 AG PRODUCTIVITY VALUES

PASTURE 180

2019 AG CALUCLATIONS

PASTURE	YEAR	RENT	MGMT. FEE	R.E. TAXES	NET TO LAND	
	2013	$20.00	$ 1.50	$3.28	$15.22	
	2014	$25.00	$ 1.75	$3.28	$19.86	
	2015	$25.00	$1.75	$3.55	$19.70	
	2016	$25.00	$1.75	$3.59	$19.66	5 yr Av. net
	2017	$20.00	$1.50	$3.59	$14.91	$17.87
					$89.35	
				Capitalized $ 178.87	$ 180.00/acre	

Ag Land Capitalization Rate used for 2019 10.00%

Management Fee is equal to 7% of Revenue

2013 Calculations for Productivity Values

School district	2013 Tax Rate
Newton ISD	1.27
Burkeville ISD	1.1835
Deweyville ISD	1.2425
Total	3.696
Average ISD Tax Rate	1.232
Newton County + Lateral Road	.592091

Tax Rate Calculation for Ag Productivity Calculations:

$$\text{Taxes} = \frac{(\text{Av. Tax Rate for ISD} + \text{County Rate}) * \text{Previous Year Productivity Value}}{100}$$

Pasture Tax Calculation 3.2834

2014 Calculations for Productivity Values

School district	2014 Tax Rate
Newton ISD	1.29
Burkeville ISD	1.1835
Deweyville ISD	1.2457
Total	3.7192
Average ISD Tax Rate	1.2397
Newton County + Lateral Road	.643721

Tax Rate Calculation for Ag Productivity Calculations:

$$\text{Taxes} = \frac{(\text{Av. Tax Rate for ISD} + \text{County Rate}) * \text{Previous Year Productivity Value}}{100}$$

Pasture Tax Calculation 3.3901578

2015 Calculations for Productivity Values

School district	2015 Tax Rate
Newton ISD	1.31
Burkeville ISD	1.2809
Deweyville ISD	1.2457
Total	3.8366
Average ISD Tax Rate	1.2789
Newton County + Lateral Road	.694814

Tax Rate Calculation for Ag Productivity Calculations:

$$\text{Taxes} = \frac{(\text{Av. Tax Rate for ISD} + \text{County Rate}) * \text{Previous Year Productivity Value}}{100}$$

Pasture Tax Calculation 3.552685

2016 Calculations for Productivity Values

School district	2016 Tax Rate
Newton ISD	1.33
Burkeville ISD	1.3027
Deweyville ISD	1.19752
Total	3.83022
Average ISD Tax Rate	1.27674
Newton County + Lateral Road	.719769

Tax Rate Calculation for Ag Productivity Calculations:

$$\text{Taxes} = \frac{(\text{Av. Tax Rate for ISD} + \text{County Rate}) * \text{Previous Year Productivity Value}}{100}$$

Pasture Tax Calculation 3.5937

2017 Calculations for Productivity Values

School district	2017 Tax Rate
Newton ISD	1.35
Burkeville ISD	1.30020
Deweyville ISD	1.195828
Total	3.846028
Average ISD Tax Rate	1.28200
Newton County + Lateral Road	.713246

Tax Rate Calculation for Ag Productivity Calculations:

$$\text{Taxes} = \frac{(\text{Av. Tax Rate for ISD} + \text{County Rate}) * \text{Previous Year Productivity Value}}{100}$$

Pasture Tax Calculation 3.59144

TIMBER CAPITALIZATION RATE HISTORY

YEAR	CAP RATE
1986	14.00%
1987	13.25%
1988	12.75%
1989	12.45%
1990	12.75%
1991	12.45%
1992	12.00%
1993	11.00%
1994	10.00%
1995	10.75%
1996	10.75%
1997	10.35%
1998	10.60%
1999	9.65%
2000	10.90%
2001	10.85%
2002	6.90%
2003	6.40%
2004	6.40%
2005	7.17%
2006	9.05%
2007	10.13%
2008	9.86%
2009	8.74%
2010	8.60%
2011	8.72%
2012	8.44%
2013	8.02%
2014	8.00%
2015	7.72%
2016	7.53%
2017	7.39%

2018	7.42%
2019	7.45%

2019 TIMBER VALUES

TYPE	SOIL I	SOIL II	SOIL III
PINE	471	305	229
MIXED	259	158	90
HARDWOOD	147	68	42
PINE RGT & SMZ	236	153	115
MIXED RGT & SMZ	130	79	45
HARDWOOD RGT & SMZ	74	34	21
PASTURE	180/PER ACRE		

2019 RESTRICTED-USED TIMBER VALUES

CLASS	CLASS	VALUE
SMZ-P1	RGT-P1	236
SMZ-P2	RGT-P2	153
SMZ-P3	RGT-P3	115
SMZ-M1	RGT-M1	130
SMZ-M2	RGT-M2	79
SMZ-M3	RGT-M3	45
SMZ-H1	RGT-H1	74
SMZ-H2	RGT-H2	34
SMZ-H3	RGT-H3	21

SMZ = STREAMSIDE MANAGEMENT ZONE

RGT = REFORESTATION

Tax Year

2019

Five Year Period

2014
2015
2016
2017
2018

Cap Rate

7.47%

Stumpage Prices

	Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
2014	$32.30	$27.35	$13.75	$12.84	$34.54	$34.38	$8.36	$9.05	$10.07	$9.74
2015	$35.29	$29.95	$14.70	$14.53	$39.82	$40.02	$9.06	$9.39	$14.40	$16.27
2016	$29.35	$26.99	$13.37	$12.70	$37.54	$39.78	$8.94	$9.14	$9.69	$10.62
2017	$26.43	$25.54	$10.92	$9.75	$27.80	$30.95	$7.91	$7.91	$8.71	$9.38
2018	$23.91	$28.74	$12.41	$13.80	$29.96	$29.86	$6.95	$7.16	$10.21	$9.81

Management Costs East Texas

	Pine				Mixed				Hardwood			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
2014	38.92	33.71	21.73	12.34	28.28	24.11	18.33	13.55	23.54	20.90	15.22	12.10
2015	41.15	35.00	22.56	13.01	31.26	26.48	19.48	14.48	25.19	23.22	16.22	12.56
2016	40.76	34.87	22.90	13.03	29.86	25.33	19.03	13.86	24.70	21.97	15.59	12.13
2017	41.72	35.71	23.52	13.38	29.46	25.22	18.95	13.75	24.02	21.30	15.09	11.84
2018	41.72	35.71	23.52	13.38	29.46	25.22	18.95	13.75	24.02	21.30	15.09	11.84

PLEASE NOTE: THESE SPREADSHEETS ARE A WORK IN PROGRESS.
The Comptroller's Property Tax Assistance Division contracts with the Texas A&M Forest Service (TFS) to develop the management costs for use in determining timberland productivity values for the Property Value Study (PVS). TFS will not have completed its work in developing management costs for the 2018 tax year until November or December 2019. As as result, these spreadsheets use the 2017 management costs for the 2018 tax year. Values to be used in the 2019 PVS will be somewhat different when TFS's management costs for the 2018 tax year are incorporated into the 2019 PVS.

TABLE 1.
Net Average Annual Growth Per Acre by Forest Type and Site Class for Private Timberland

Forest Type	Site Class	Number of Plots	Average Large Pine Sawtimber Growth/Acre (Board Feet)*	Average Small Pine Sawtimber Growth/Acre (Board Feet)*	Average Hardwood Sawtimber Growth/Acre (Board Feet)*	Average Pine Pulpwood Growth/Acre (Cubic Feet)*	Average Hardwood Pulpwood Growth/Acre (Cubic Feet)*
Pine	120 +	209	333.52	96.49	20.81	27.21	4.34
	85 - 120	332	248.01	67.72	16.73	31.12	4.03
	50 - 85	154	169.39	68.56	5.66	25.31	3.90
	< 50	8	145.88	11.84	7.05	33.83	1.08
Mixed	120 +	52	176.99	27.17	98.38	6.28	6.91
	85 - 120	112	128.10	19.93	60.77	7.82	8.16
	50 - 85	76	90.04	22.61	28.34	7.63	7.66
	< 50	8	-50.04	-0.72	9.61	-0.56	0.98
Hardwood	120 +	101	65.75	7.82	133.63	2.45	7.52
	85 - 120	260	31.40	7.77	101.13	2.22	8.06
	50 - 85	195	13.87	6.29	59.18	1.20	6.11
	< 50	61	13.38	1.50	45.54	0.84	4.10

*Board feet are expressed in terms of International 1/4 inch log rule.
Source: Texas A&M Forest Service, from the U.S. Department of Agricultural Forest Service Survey of Texas Timber

TABLE 2. Calculation of Average Annual Growth, Per Acre, by Forest Type and Forest Product

FOREST TYPE: PINE

Site Class	Number of Plots	Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
		Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (cubic feet)*	Total Growth per Site Class	Average Growth/Acre (cubic feet)*	Total Growth per Site Class
120 +	209	333.52	69,705.68	96.49	20,166.41	20.81	4,349.29	27.21	5,688.69	4.34	907.06
85-120	332	248.01	82,339.32	67.72	22,483.04	16.73	5,554.36	31.12	10,331.84	4.03	1,337.96
50-84	154	169.39	26,086.06	68.56	10,558.24	5.66	871.64	25.31	3,897.74	3.90	600.60
<50	8	145.88	1,167.04	11.84	94.72	7.05	56.40	33.63	270.64	1.08	8.64
Totals	703		179,298.10		53,302.41		10,831.69		20,187.11		2,854.26
			÷ 703		÷ 703		÷ 703		÷ 703		÷ 703
			= 255.05 bd. ft.		= 75.82 bd. ft.		= 15.41 bd. ft.		= 28.72 cu. ft.		= 4.06 cu. ft.

FOREST TYPE: MIXED

Site Class	Number of Plots	Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
		Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (cubic feet)*	Total Growth per Site Class	Average Growth/Acre (cubic feet)*	Total Growth per Site Class
120 +	52	176.99	9,203.48	27.17	1,412.84	96.38	5,011.76	6.28	326.56	6.91	359.32
85-120	112	128.10	14,347.20	19.93	2,232.16	60.77	6,806.24	7.82	875.84	8.16	913.92
50-84	76	90.04	6,843.04	22.61	1,718.36	28.34	2,153.84	7.63	579.88	7.68	582.16
<50	8	-50.04	-400.32	-0.72	-5.76	9.61	76.88	-0.56	-4.48	0.98	7.84
Totals	248		29,993.40		5,357.60		14,048.72		1,777.80		1,863.24
			÷ 248		÷ 248		÷ 248		÷ 248		÷ 248
			= 120.94 bd. ft.		= 21.60 bd. ft.		= 56.65 bd. ft.		= 7.17 cu. ft.		= 7.51 cu. ft.

FOREST TYPE: HARDWOOD

Site Class	Number of Plots	Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
		Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (board feet)*	Total Growth per Site Class	Average Growth/Acre (cubic feet)*	Total Growth per Site Class	Average Growth/Acre (cubic feet)*	Total Growth per Site Class
120 +	101	65.75	6,640.75	7.82	789.82	133.63	13,496.63	2.45	247.45	7.52	759.52
85-120	260	31.40	8,164.00	7.77	2,020.20	101.13	26,293.80	2.22	577.20	8.06	2,095.60
50-84	185	13.87	2,704.65	6.29	1,226.55	59.18	11,540.10	1.20	234.00	6.11	1,191.45
<50	61	13.36	814.68	1.50	91.50	45.54	2,777.94	0.84	51.24	4.10	250.10
Totals	617		18,324.38		4,128.07		54,108.47		1,109.89		4,296.67
			÷ 617		÷ 617		÷ 617		÷ 617		÷ 617
			= 29.70 bd. ft.		= 6.69 bd. ft.		= 87.70 bd. ft.		= 1.80 cu. ft.		= 6.96 cu. ft.

*Board feet are expressed in terms of International 1/4 inch log rule.

TABLE 3.
Average Annual Timber Growth, Measured in Terms of Forest Products, on an Average Acre of Timberland, by Forest Type

	Board Feet* per Acre per Year			Cubic Feet per Acre per Year	
Forest Type	Large Pine Sawtimber	Small Pine Sawtimber	Hardwood Sawtimber	Pine Pulpwood	Hardwood Pulpwood
Pine	255.05	75.82	15.41	28.72	4.06
Mixed	120.94	21.60	56.65	7.17	7.51
Hardwood	29.70	6.69	87.70	1.80	6.96

* Million board feet are expressed in terms of International 1/4 inch log rule.

TABLE 4.
Calculation of the Weighted Conversion Factors Used to Change the Volume of Large Pine Sawtimber and Hardwood Sawtimber Measured in International 1/4 inch Long Rule to Doyle Log Rule

Diameter Class	Volume in Million bd. ft International 1/4" Log Rule		Total Volume		Percent of Total Volume		Conversion Factor		Weighted Contribution
PINE									
11 - 12.9	5,173.6	+	30,624.2	=	16.894%	x	0.49037	=	0.08284
13 - 14.9	5,149.9	+	30,624.2	=	16.816%	x	0.52460	=	0.08822
15 - 16.9	5,050.6	+	30,624.2	=	16.492%	x	0.59120	=	0.09750
17 - 18.9	4,229.5	+	30,624.2	=	13.811%	x	0.65273	=	0.09015
19 - 20.9	3,534.0	+	30,624.2	=	11.540%	x	0.70653	=	0.08153
21 - 28.9	6,058.8	+	30,624.2	=	19.784%	x	0.81153	=	0.16055
29+	1,427.7	+	30,624.2	=	4.662%	x	0.92181	=	0.04297
	30,624.2				100.00%				0.64376
Weighted Conversion Factor for Large Pine Sawtimber = 0.64376									
HARDWOOD									
11 - 12.9	2,478.4	+	18,737.0	=	13.227%	x	0.46377	=	0.06134
13 - 14.9	2,901.6	+	18,737.0	=	15.486%	x	0.52923	=	0.08196
15 - 16.9	2,661.5	+	18,737.0	=	14.205%	x	0.59130	=	0.08399
17 - 18.9	2,477.2	+	18,737.0	=	13.221%	x	0.64600	=	0.08541
19 - 20.9	2,138.2	+	18,737.0	=	11.412%	x	0.69327	=	0.07912
21 - 28.9	4,682.8	+	18,737.0	=	24.992%	x	0.78412	=	0.19597
29+	1,397.3	+	18,737.0	=	7.457%	x	0.87323	=	0.06512
	18,737.0				100.00%				0.65291
Weighted Conversion Factor for Hardwood Sawtimber = 0.65291									

Volume Data from United States Forest Service, Forest Inventory and Analysis
Conversion Factors for International 1/4 Inch Log Rule to Doyle Log Rule from Mississippi State Study conducted by Thomas Matney
Conversion Factors for Doyle Log Rule to Tons from Texas A&M Forest Service

Table 5.
Converting Sawtimber Volumes Measured in International 1/4 Inch Rule and Pulpwood Cubic Foot Volumes to Tons, by Forest Type

FOREST TYPE: PINE

Forest Product	MBF International 1/4" Rule*		Weighted Doyle Conversion Factor**		MBF Doyle Rule		MBF Conversion		Growth in Board Feet		Ton Conversion Factor		Growth in Tons
Large Pine Sawtimber	255.05	x	0.64376	=	164.19	÷	1,000	=	0.16419	x	8.00	=	1.3135
Hardwood Sawtimber	15.41	x	0.65291	=	10.06	÷	1,000	=	0.01006	x	9.00	=	0.0905

	Cubic Feet*	MBF International 1/4" Rule*		Cord Conversion Factor		Growth in Cords		Ton Conversion Factor		Growth in Tons
Small Pine Sawtimber		75.82	÷	500	=	0.15164	x	2.70		0.4094
Pine Pulpwood	28.72		÷	81	=	0.35457	x	2.70		0.9573
Hardwood Pulpwood	4.06		÷	80	=	0.05075	x	2.80		0.1421

FOREST TYPE: MIXED

Forest Product	MBF International 1/4" Rule*		Weighted Doyle Conversion Factor**		MBF Doyle Rule		MBF Conversion		Growth in Board Feet		Ton Conversion Factor		Growth in Tons
Large Pine Sawtimber	120.94	x	0.64376	=	77.86	÷	1,000	=	0.07786	x	8.00	=	0.6229
Hardwood Sawtimber	56.65	x	0.65291	=	36.99	÷	1,000	=	0.03699	x	9.00	=	0.3329

	Cubic Feet*	MBF International 1/4" Rule*		Cord Conversion Factor		Growth in Cords		Ton Conversion Factor		Growth in Tons
Small Pine Sawtimber		21.60	÷	500	=	0.04320	x	2.70	=	0.1166
Pine Pulpwood	7.17		÷	81	=	0.08852	x	2.70	=	0.2390
Hardwood Pulpwood	7.51		÷	80	=	0.09388	x	2.80	=	0.2629

FOREST TYPE: HARDWOOD

Forest Product	MBF International 1/4" Rule*		Weighted Doyle Conversion Factor**		MBF Doyle Rule		MBF Conversion		Growth in Board Feet		Ton Conversion Factor		Growth in Tons
Large Pine Sawtimber	29.70	x	0.64376	=	19.12	÷	1,000	=	0.01912	x	8.00	=	0.1530
Hardwood Sawtimber	87.70	x	0.65291	=	57.26	÷	1,000	=	0.05726	x	9.00	=	0.5153

	Cubic Feet*	MBF International 1/4" Rule*		Cord Conversion Factor		Growth in Cords		Ton Conversion Factor		Growth in Tons
Small Pine Sawtimber		6.69	÷	500	=	0.01338	x	2.70	=	0.0361
Pine Pulpwood	1.80		÷	81	=	0.02222	x	2.70	=	0.0600
Hardwood Pulpwood	6.96		÷	80	=	0.08700	x	2.80	=	0.2436

*From Table 3
**From Table 4
Conversion Factors for International 1/4 Inch Log Rule to Doyle Log Rule from Mississippi State Study conducted by Thomas Matney

Conversion Factors for Doyle Log Rule to Tons & for International 1/4" Rule to Cord from Texas A&M Forest Service, Timber Price Trends

TABLE 6.
Average Annual Timber Growth, Measured in Tons per Acre per Year, by Forest Type and Forest Product

Forest Type	Large Pine Sawtimber	Small Pine Sawtimber	Hardwood Sawtimber	Pine Pulpwood	Hardwood Pulpwood
Pine	1.3135	0.4094	0.0905	0.9573	0.1421
Mixed	0.6229	0.1166	0.3329	0.2390	0.2629
Hardwood	0.1530	0.0361	0.5153	0.0600	0.2436

TABLE 7.
Average Stumpage Prices Measured in Price per Ton for Forest Products

	Large Pine Sawtimber			Small Pine Sawtimber			Hardwood Sawtimber		
Year	Unweighted Average Prices	Weighted Average Prices	Average of Unweighted and Weighted Prices	Unweighted Average Prices	Weighted Average Prices	Average of Unweighted and Weighted Prices	Unweighted Average Prices	Weighted Average Prices	Average of Unweighted and Weighted Prices
2014	$32.30	$27.35	$29.83	$13.75	$12.84	$13.30	$34.54	$34.38	$34.46
2015	$35.29	$29.95	$32.62	$14.70	$14.53	$14.62	$39.82	$40.02	$39.92
2016	$29.35	$26.99	$28.17	$13.37	$12.70	$13.04	$37.54	$39.78	$38.66
2017	$26.43	$25.54	$25.99	$10.92	$9.75	$10.34	$27.80	$30.95	$29.38
2018	$23.91	$28.74	$26.33	$12.41	$13.80	$13.11	$29.96	$29.86	$29.91

	Pine Pulpwood			Hardwood Pulpwood		
Year	Unweighted Average Prices	Weighted Average Prices	Average of Unweighted and Weighted Prices	Unweighted Average Prices	Weighted Average Prices	Average of Unweighted and Weighted Prices
2014	$8.36	$9.05	$8.71	$10.07	$9.74	$9.91
2015	$9.06	$9.39	$9.23	$14.40	$16.27	$15.34
2016	$8.94	$9.14	$9.04	$9.69	$10.62	$10.16
2017	$7.91	$7.91	$7.91	$8.71	$9.38	$9.05
2018	$6.95	$7.16	$7.06	$10.21	$9.81	$10.01

Unweighted averages are arithmetic means of reported transactions.
Weighted averages are equal to the total value of reported transactions divided by the total volume of reported transactions.
Source: Texas A&M Forest Service

TABLE 8.
Calculation of the Annual Average Gross Income of an Acre of Timber Growth, by Forest Product

PINE

Year	Sawtimber Growth (tons)									Pulp Growth (tons)							Average Annual Gross Income
	Large Pine*	x	Price**	+	Small Pine*	x	Price**	+	Hardwood*	x	Price**	+	Pine*	x	Price**	+	Hardwood*	x	Price**	=	
2014	1.3135	x	$29.83	+	0.4094	x	$13.30	+	0.0905	x	$34.46	+	0.9573	x	$8.71	+	0.1421	x	$9.91	=	$57.50
2015	1.3135	x	$32.62	+	0.4094	x	$14.62	+	0.0905	x	$39.92	+	0.9573	x	$9.23	+	0.1421	x	$15.34	=	$63.47
2016	1.3135	x	$28.17	+	0.4094	x	$13.04	+	0.0905	x	$38.66	+	0.9573	x	$9.04	+	0.1421	x	$10.16	=	$55.93
2017	1.3135	x	$25.99	+	0.4094	x	$10.34	+	0.0905	x	$29.38	+	0.9573	x	$7.91	+	0.1421	x	$9.05	=	$49.89
2018	1.3135	x	$26.33	+	0.4094	x	$13.11	+	0.0905	x	$29.91	+	0.9573	x	$7.06	+	0.1421	x	$10.01	=	$50.84

MIXED

Year	Sawtimber Growth (tons)									Pulp Growth (tons)							Average Annual Gross Income
	Large Pine*	x	Price**	+	Small Pine*	x	Price**	+	Hardwood*	x	Price**	+	Pine*	x	Price**	+	Hardwood*	x	Price**	=	
2014	0.6229	x	$29.83	+	0.1166	x	$13.30	+	0.3329	x	$34.46	+	0.2390	x	$8.71	+	0.2629	x	$9.91	=	$36.29
2015	0.6229	x	$32.62	+	0.1166	x	$14.62	+	0.3329	x	$39.92	+	0.2390	x	$9.23	+	0.2629	x	$15.34	=	$41.55
2016	0.6229	x	$28.17	+	0.1166	x	$13.04	+	0.3329	x	$38.66	+	0.2390	x	$9.04	+	0.2629	x	$10.16	=	$36.77
2017	0.6229	x	$25.99	+	0.1166	x	$10.34	+	0.3329	x	$29.38	+	0.2390	x	$7.91	+	0.2629	x	$9.05	=	$31.46
2018	0.6229	x	$26.33	+	0.1166	x	$13.11	+	0.3329	x	$29.91	+	0.2390	x	$7.06	+	0.2629	x	$10.01	=	$32.21

HARDWOOD

Year	Sawtimber Growth (tons)									Pulp Growth (tons)							Average Annual Gross Income
	Large Pine*	x	Price**	+	Small Pine*	x	Price**	+	Hardwood*	x	Price**	+	Pine*	x	Price**	+	Hardwood*	x	Price**	=	
2014	0.1530	x	$29.83	+	0.0361	x	$13.30	+	0.5153	x	$34.46	+	0.0600	x	$8.71	+	0.2436	x	$9.91	=	$25.73
2015	0.1530	x	$32.62	+	0.0361	x	$14.62	+	0.5153	x	$39.92	+	0.0600	x	$9.23	+	0.2436	x	$15.34	=	$30.38
2016	0.1530	x	$28.17	+	0.0361	x	$13.04	+	0.5153	x	$38.66	+	0.0600	x	$9.04	+	0.2436	x	$10.16	=	$27.71
2017	0.1530	x	$25.99	+	0.0361	x	$10.34	+	0.5153	x	$29.38	+	0.0600	x	$7.91	+	0.2436	x	$9.05	=	$22.16
2018	0.1530	x	$26.33	+	0.0361	x	$13.11	+	0.5153	x	$29.91	+	0.0600	x	$7.06	+	0.2436	x	$10.01	=	$22.77

* From Table 6
**From Table 7

TABLE 9.
Calculation of the Potential Growth of an Average Acre of Timber, East Texas

	Number of Privately Owned Acres (000's) by Site Class					
County	165+	120-165	85-120	50-85	<50	All Classes
Anderson	15.7	70.5	152.9	121.0	15.7	375.9
Angelina	20.2	95.0	172.2	27.4	2.3	317.1
Bowie	11.3	22.6	117.9	68.4	11.2	231.5
Camp	2.8	8.0	19.1	10.5	0.0	40.4
Cass	14.9	94.4	215.0	89.3	13.7	427.2
Chambers	0.0	1.8	7.3	16.8	3.0	28.8
Cherokee	13.4	95.1	194.6	87.6	3.7	394.4
Franklin	2.1	1.2	25.9	39.0	14.9	83.1
Gregg	3.3	11.9	52.6	18.9	0.0	86.7
Grimes	0.0	8.8	29.1	77.6	27.4	142.9
Hardin	12.7	83.5	195.6	140.1	15.1	447.0
Harris	3.6	16.0	62.0	62.2	8.8	152.7
Harrison	12.9	95.1	209.0	52.4	3.1	372.4
Henderson	0.7	4.5	34.9	71.6	69.9	181.7
Houston	4.1	47.6	159.6	94.5	9.3	315.1
Jasper	28.3	91.3	180.1	153.8	14.1	467.7
Jefferson	4.3	11.9	22.4	20.7	6.0	65.4
Leon	0.0	7.1	63.0	137.0	93.2	300.3
Liberty	21.7	61.4	130.0	127.5	22.8	363.4
Madison	2.0	2.3	22.9	36.4	10.1	73.7
Marion	4.7	52.1	115.3	31.0	1.2	204.3
Montgomery	5.2	48.5	169.0	91.1	26.0	339.8
Morris	1.2	7.9	26.3	21.5	0.6	57.5
Nacogdoches	27.4	130.1	201.0	33.7	4.3	396.6
Newton	21.4	120.8	217.5	152.1	11.1	522.9
Orange	2.5	21.6	38.7	38.0	4.3	105.2
Panola	20.3	105.8	190.2	42.0	2.4	360.6
Polk	37.6	113.1	228.8	139.5	11.9	530.9
Red River	4.3	12.3	114.6	164.8	30.2	326.3
Rusk	16.9	83.0	143.2	81.1	6.1	330.3
Sabine	14.2	69.7	99.7	8.1	0.0	191.8
San Augustine	16.7	62.4	113.5	6.1	1.0	199.8
San Jacinto	8.6	40.3	102.8	58.8	11.1	221.5
Shelby	24.6	75.9	133.9	25.2	0.0	259.6
Smith	4.2	36.5	124.3	70.2	12.6	247.7
Titus	0.0	13.0	37.8	38.6	9.5	98.9
Trinity	20.9	64.6	119.4	56.9	3.9	265.6
Tyler	16.1	102.1	216.2	150.1	8.7	493.4
Upshur	9.5	37.2	103.9	47.4	5.7	203.7
Van Zandt	0.0	0.0	47.9	55.1	36.6	139.6
Walker	8.1	42.6	120.5	81.3	12.0	264.5
Waller	0.6	3.5	28.3	24.1	11.7	68.3
Wood	0.2	24.1	127.3	62.0	13.7	227.4
All Counties	439.5	2,097.2	4,886.4	2,931.4	569.1	10,923.6

TABLE 9.
Calculation of the Potential Growth of an Average Acre of Timber, East Texas
(continued)

	Potential Cubic Feet of Growth x Number of Acres (000's)					
Growth Potentials	163	163	123	85	60	
County / Soil Type	165+	120-165	85-120	50-85	≤50	Total
Anderson	2,560.0	11,495.7	18,811.8	10,288.6	943.4	44,099.7
Angelina	3,288.6	15,492.5	21,175.7	2,331.6	136.8	42,425.3
Bowie	1,845.5	3,686.8	14,500.2	5,817.2	674.4	26,524.2
Camp	449.9	1,310.7	2,354.4	888.6	0.0	5,003.6
Cass	2,424.2	15,385.6	26,440.2	7,586.6	824.1	52,660.7
Chambers	0.0	289.7	899.4	1,425.3	178.5	2,792.9
Cherokee	2,181.4	15,493.8	23,934.7	7,447.2	223.2	49,280.3
Franklin	339.0	197.9	3,180.5	3,314.8	894.3	7,926.5
Gregg	537.0	1,935.8	6,463.9	1,609.5	0.0	10,546.1
Grimes	0.0	1,435.7	3,577.7	6,599.5	1,644.5	13,257.4
Hardin	2,076.3	13,609.1	24,062.6	11,905.9	903.1	52,556.9
Harris	593.5	2,611.9	7,621.7	5,287.4	530.7	16,645.2
Harrison	2,109.6	15,496.7	25,702.4	4,451.7	184.4	47,944.7
Henderson	117.4	741.0	4,296.8	6,087.2	4,195.3	15,437.5
Houston	664.5	7,755.4	19,635.3	8,031.8	559.9	36,646.8
Jasper	4,616.6	14,884.5	22,155.0	13,074.8	848.0	55,578.8
Jefferson	707.4	1,934.5	2,756.3	1,760.9	362.9	7,522.1
Leon	0.0	1,160.0	7,748.4	11,646.2	5,592.1	26,146.8
Liberty	3,536.2	10,015.0	15,987.2	10,837.2	1,367.1	41,742.8
Madison	332.5	368.5	2,815.4	3,097.1	603.0	7,216.6
Marion	773.8	8,492.9	14,184.1	2,630.9	72.0	26,153.7
Montgomery	855.0	7,908.4	20,781.2	7,747.5	1,557.7	38,849.8
Morris	198.3	1,282.4	3,239.0	1,825.3	36.0	6,581.0
Nacogdoches	4,474.2	21,207.7	24,726.9	2,863.2	259.2	53,531.2
Newton	3,480.9	19,698.0	26,754.9	12,925.4	668.4	63,527.5
Orange	404.2	3,526.4	4,761.8	3,229.9	260.6	12,182.9
Panola	3,308.5	17,242.9	23,399.3	3,566.1	141.6	47,658.3
Polk	6,129.3	18,437.9	28,141.1	11,854.8	712.9	65,276.0
Red River	705.0	1,999.8	14,101.4	14,009.9	1,812.5	32,628.6
Rusk	2,752.2	13,528.7	17,613.5	6,894.4	364.8	41,153.6
Sabine	2,316.2	11,366.4	12,265.5	691.2	0.0	26,639.4
San Augustine	2,730.1	10,176.8	13,959.4	515.3	62.4	27,444.0
San Jacinto	1,395.9	6,560.8	12,645.1	4,995.7	667.7	26,265.3
Shelby	4,012.1	12,371.2	16,472.4	2,140.3	0.0	34,996.1
Smith	688.3	5,942.1	15,284.8	5,965.9	756.4	28,637.5
Titus	0.0	2,117.9	4,650.3	3,282.1	568.1	10,618.4
Trinity	3,399.8	10,526.5	14,683.6	4,833.6	235.5	33,679.1
Tyler	2,631.8	16,646.9	26,598.9	12,759.9	524.3	59,159.7
Upshur	1,546.8	6,062.0	12,777.3	4,030.8	344.1	24,761.0
Van Zandt	0.0	0.0	5,892.4	4,683.3	2,194.9	12,770.6
Walker	1,323.8	6,942.8	14,821.4	6,912.0	717.6	30,717.7
Waller	102.6	575.3	3,486.5	2,052.4	701.8	6,918.6
Wood	26.1	3,934.9	15,663.3	5,270.7	823.3	25,718.3
All Counties	71,634.6	341,849.6	601,022.0	249,169.8	34,147.3	1,297,823.2

1,297,823.2 ÷ 10,923.6 = 118.81 cubic feet per acre per year

Data from the United States Forest Service, Forest Inventory and Analysis
Growth potentials based on the 1975 Boyce Study

TABLE 10.
Calculation of Soil Productivity Multipliers

Soil Productivity Class	Average Maximum Potential Productivity in Southern United States (cu. ft. /acre /yr.)		Average Maximum Potential Productivity (cu. ft. /acre /yr.)		Productivity Multiplier
I	163	+	118.81	=	1.37
II	123	+	118.81	=	1.04
III	85	+	118.81	=	0.72
IV	60	+	118.81	=	0.51

Source: Average Maximum Potential Productivity from Boyce Study

TABLE 11. Calculation of Average Annual Potential Growth Income by Forest Type and Soil Productivity Class

PINE

Soil Productivity Class	I				II				III				IV			
Year	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income
2014	$57.50	x	1.37 =	$78.78	$57.50	x	1.04 =	$59.80	$57.50	x	0.72 =	$41.40	$57.50	x	0.51 =	$29.33
2015	$63.47	x	1.37 =	$86.95	$63.47	x	1.04 =	$66.01	$63.47	x	0.72 =	$45.70	$63.47	x	0.51 =	$32.37
2016	$55.93	x	1.37 =	$76.62	$55.93	x	1.04 =	$58.17	$55.93	x	0.72 =	$40.27	$55.93	x	0.51 =	$28.52
2017	$49.89	x	1.37 =	$68.35	$49.89	x	1.04 =	$51.89	$49.89	x	0.72 =	$35.92	$49.89	x	0.51 =	$25.44
2018	$50.84	x	1.37 =	$69.65	$50.84	x	1.04 =	$52.87	$50.84	x	0.72 =	$36.60	$50.84	x	0.51 =	$25.93

MIXED

Soil Productivity Class	I				II				III				IV			
Year	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income
2014	$36.29	x	1.37 =	$49.72	$36.29	x	1.04 =	$37.74	$36.29	x	0.72 =	$26.13	$36.29	x	0.51 =	$18.51
2015	$41.55	x	1.37 =	$56.92	$41.55	x	1.04 =	$43.21	$41.55	x	0.72 =	$29.92	$41.55	x	0.51 =	$21.19
2016	$36.77	x	1.37 =	$50.37	$36.77	x	1.04 =	$38.24	$36.77	x	0.72 =	$26.47	$36.77	x	0.51 =	$18.75
2017	$31.45	x	1.37 =	$43.09	$31.45	x	1.04 =	$32.71	$31.45	x	0.72 =	$22.64	$31.45	x	0.51 =	$16.04
2018	$32.21	x	1.37 =	$44.13	$32.21	x	1.04 =	$33.50	$32.21	x	0.72 =	$23.19	$32.21	x	0.51 =	$16.43

HARDWOOD

Soil Productivity Class	I				II				III				IV			
Year	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income	Gross Income*		Prod. Mult.**	Potential Gross Income
2014	$25.73	x	1.37 =	$35.25	$25.73	x	1.04 =	$26.76	$25.73	x	0.72 =	$18.53	$25.73	x	0.51 =	$13.12
2015	$30.38	x	1.37 =	$41.62	$30.38	x	1.04 =	$31.60	$30.38	x	0.72 =	$21.87	$30.38	x	0.51 =	$15.49
2016	$27.71	x	1.37 =	$37.96	$27.71	x	1.04 =	$28.82	$27.71	x	0.72 =	$19.95	$27.71	x	0.51 =	$14.13
2017	$22.16	x	1.37 =	$30.36	$22.16	x	1.04 =	$23.05	$22.16	x	0.72 =	$15.96	$22.16	x	0.51 =	$11.30
2018	$22.77	x	1.37 =	$31.19	$22.77	x	1.04 =	$23.68	$22.77	x	0.72 =	$16.39	$22.77	x	0.51 =	$11.61

*From Table 8
**From Table 10

TABLE 12.
Average Annual Timber Production Costs

Year	Production Cost
2014	$33.71
2015	$35.00
2016	$34.87
2017	$35.71
2018	$35.71

Texas A&M Forest Service develops production costs used in the Comptroller's annual Property Value Study for each of the twelve classes of timberlands. See Texas Timberland Management Cost Studies. Costs listed above are those developed by the Texas A&M Forest Service for Pine II, the most common class in East Texas.

PLEASE NOTE: THESE SPREADSHEETS ARE A WORK IN PROGRESS. The Comptroller's Property Tax Assistance Division contracts with the Texas A&M Forest Service (TFS) to develop the management costs for use in determining timberland productivity values for the Property Value Study (PVS). TFS will not have completed its work in developing management costs for the 2018 tax year until November or December 2019. As a result, these spreadsheets use the 2017 management costs for the 2018 tax year. Values to be used in the 2019 PVS will be somewhat different when TFS's management costs for the 2018 tax year are incorporated into the 2019 PVS.

TABLE 13.
Production Costs Adjusted for Soil Productivity by Forest Type and Soil Productivity Class

PINE

Soil Productivity Class	I			II			III			IV		
Year	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost	Cost		Prorated Cost	Cost	Factor	Prorated Cost
2014		x =	$38.92		x =	$33.71		x	$21.73		x =	$12.34
2015		x =	$41.15		x =	$35.00		x	$22.56		x =	$13.01
2016		x =	$40.76		x =	$34.87		x	$22.90		x =	$13.03
2017		x =	$41.72		x =	$35.71		x	$23.52		x =	$13.38
2018		x =	$41.72		x =	$35.71		x	$23.52		x =	$13.38

MIXED

Soil Productivity Class	I			II			III			IV		
Year	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost	Cost		Prorated Cost	Cost	Factor	Prorated Cost
2014		x =	$28.28		x =	$24.11		x	$18.33		x =	$13.55
2015		x =	$31.26		x =	$26.48		x	$19.48		x =	$14.48
2016		x =	$29.86		x =	$25.33		x	$19.03		x =	$13.86
2017		x =	$29.46		x =	$25.22		x	$18.95		x =	$13.75
2018		x =	$29.46		x =	$25.22		x	$18.95		x =	$13.75

HARDWOOD

Soil Productivity Class	I			II			III			IV		
Year	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost
2014		x =	$23.54		x =	$20.90		x =	$15.22		x =	$12.10
2015		x =	$25.19		x =	$23.22		x =	$16.22		x =	$12.58
2016		x =	$24.70		x =	$21.97		x =	$15.59		x =	$12.13
2017		x =	$24.02		x =	$21.30		x =	$15.09		x =	$11.84
2018		x =	$24.02		x =	$21.30		x =	$15.09		x =	$11.84

Texas A&M Forest Service develops production costs used in the Comptroller's annual Property Value Study for each of the twelve classes of timberlands. Proration no longer necessary.

PLEASE NOTE: THESE SPREADSHEETS ARE A WORK IN PROGRESS.

The Comptroller's Property Tax Assistance Division contracts with the Texas A&M Forest Service (TFS) to develop the management costs for use in determining timberland productivity values for the Property Value Study (PVS). TFS will not have completed its work in developing management costs for the 2018 tax year until November or December 2019. As a result, these spreadsheets use the 2017 management costs for the 2018 tax year. Values to be used in the 2019 PVS will be somewhat different when TFS's management costs for the 2018 tax year are incorporated into the 2019 PVS.

TABLE 14.
Calculation of Average Annual Net Income

PINE

Soil Productivity Class	I			II			III			IV		
Year	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income
2014	$78.78 -	38.92 =	$39.86	$59.80 -	33.71 =	$26.09	$41.40 -	21.73	$19.67	$29.33 -	12.34 =	$16.99
2015	$86.95 -	41.15 =	$45.80	$86.01 -	35.00 =	$31.01	$45.70 -	22.56	$23.14	$32.37 -	13.01 =	$19.36
2016	$76.62 -	40.76 =	$35.86	$58.17 -	34.87 =	$23.30	$40.27 -	22.90	$17.37	$28.52 -	13.03 =	$15.49
2017	$68.35 -	41.72 =	$26.63	$51.89 -	35.71 =	$16.18	$35.92 -	23.52	$12.40	$25.44 -	13.38 =	$12.06
2018	$69.65 -	41.72 =	$27.93	$52.87 -	35.71 =	$17.16	$36.60 -	23.52	$13.08	$25.93 -	13.38 =	$12.55
5 Year Average			$35.22			$22.75			$17.13			$15.29

MIXED

Soil Productivity Class	I			II			III			IV		
Year	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income
2014	$49.72 -	28.28 =	$21.44	$37.74 -	24.11 =	$13.63	$26.13 -	18.33	$7.80	$18.51 -	13.55 =	$4.96
2015	$56.92 -	31.26 =	$25.66	$43.21 -	26.48 =	$16.73	$29.82 -	19.48	$10.44	$21.19 -	14.48 =	$6.71
2016	$50.37 -	29.86 =	$20.51	$38.24 -	25.33 =	$12.91	$26.47 -	19.03	$7.44	$18.75 -	13.86 =	$4.89
2017	$43.09 -	29.48 =	$13.63	$32.71 -	25.22 =	$7.49	$22.64 -	18.95	$3.69	$16.04 -	13.75 =	$2.29
2018	$44.13 -	29.48 =	$14.67	$33.50 -	25.22 =	$8.28	$23.19 -	18.95	$4.24	$16.43 -	13.75 =	$2.68
5 Year Average			$19.18			$11.81			$6.72			$4.31

HARDWOOD

Soil Productivity Class	I			II			III			IV		
Year	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income	Potential Gross Income*	Annual Costs**	Net Income
2014	$35.25 -	23.54 =	$11.71	$28.78 -	20.90 =	$5.88	$18.53 -	15.22 =	$3.31	$13.12 -	12.10 =	$1.02
2015	$41.62 -	25.19 =	$16.43	$31.60 -	23.22 =	$8.38	$21.87 -	16.22 =	$5.65	$15.49 -	12.56 =	$2.93
2016	$37.96 -	24.70 =	$13.26	$28.82 -	21.97 =	$6.85	$19.95 -	15.59 =	$4.36	$14.13 -	12.13 =	$2.00
2017	$30.36 -	24.02 =	$6.34	$23.05 -	21.30 =	$1.75	$15.96 -	15.09 =	$0.87	$11.30 -	11.84 =	-$0.54
2018	$31.19 -	24.02 =	$7.17	$23.68 -	21.30 =	$2.38	$16.39 -	15.09 =	$1.30	$11.61 -	11.84 =	-$0.23
5 Year Average			$10.98			$5.04			$3.10			$1.04

*From Table 11
** From Table 13

PLEASE NOTE: THESE SPREADSHEETS ARE A WORK IN PROGRESS.

The Comptroller's Property Tax Assistance Division contracts with the Texas A&M Forest Service (TFS) to develop the management costs for use in determining timberland productivity values for the Property Value Study (PVS). TFS will not have completed its work in developing management costs for the 2018 tax year until November or December 2019. As a result, these spreadsheets use the 2017 management costs for the 2018 tax year. Values to be used in the 2019 PVS will be somewhat different when TFS's management costs for the 2018 tax year are incorporated into the 2019 PVS.

TABLE 15.
Calculation of Timber Productivity Values

CAPITALIZATION RATE 7.47% 2019 Value

	Productivity Class							
	II		III		IV		V	
Forest Type	Net Income	Productivity Value	Net Income	Productivity Value	Net Income	Productivity Value	Net Income	Productivity Value
Pine	$35.22	$471.49	$22.75	$304.55	$17.13	$229.32	$15.29	$204.69
Mixed	$19.18	$256.76	$11.81	$158.10	$6.72	$89.96	$4.31	$57.70
Hardwood	$10.98	$146.99	$5.04	$67.47	$3.10	$41.50	$1.04	$13.92

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The Comptroller's Property Tax Assistance Division contracts with the Texas A&M Forest Service (TFS) to develop the management costs for use in determining timberland productivity values for the Property Value Study (PVS). TFS will not have completed its work in developing management costs for the 2018 tax year until November or December 2019. As a result, these spreadsheets use the 2017 management costs for the 2018 tax year. Values to be used in the 2019 PVS will be somewhat different when TFS's management costs for the 2018 tax year are incorporated into the 2019 PVS.