

NEWTON CENTRAL APPRAISAL DISTRICT



AGRICULTURE, TIMBER AND RURAL LAND

VALUATION REPORT

2018 APPRAISAL YEAR

SUMMARY

OPEN-SPACE VALUATION

Agriculture Values for 2018 were calculated after pasture rental information was obtained from the Agricultural Advisory Board. Rents of \$25.00 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 2017 for pasture are the same as 2016. There are approximately 30,200 acres in pasture land.

TIMBER VALUATION

To calculate the 2018 Timber Productivity Values, we used the Timber Production Value Spreadsheet and Capitalization Rate of 7.42% 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 7.39%

Management costs have remained level. Furthermore, the Capitalization Rate for 2018 increased .03%

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

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

TIMBER VALUE MODEL

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

2018 AG PRODUCTIVITY VALUES

PASTURE 180

2018 AG CALUCLATIONS

PASTURE	YEAR	RENT	MGMT. FEE	R.E. TAXES	NET TO LAND	
	2012	\$20.00	\$ 1.50	\$3.23	\$15.27	
	2013	\$20.00	\$ 1.50	\$3.28	\$15.22	
	2014	\$20.00	\$1.75	\$3.28	\$19.86	
	2015	\$25.00	\$1.75	\$3.55	\$19.70	5 yr
	2016	\$25.00	\$1.75	\$3.59	\$19.66	Av. net
						\$17.942

\$

Capitalized \$ 179.42 \$ 180.00/acre

Ag Land Capitalization Rate used for 2018 10.00%

Management Fee is equal to 7% of Revenue

2012 Calculations for Productivity Values

School district	2012 Tax Rate
Newton ISD	1.24
Burkeville ISD	1.1835
Deweyville ISD	1.2132
Total	3.6367
Average ISD Tax Rate	1.2122
Newton County + Lateral Road	.591349

Tax Rate Calculation for Ag Productivity Calculations:

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

Pasture Tax Calculation 3.2324639

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:

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

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:

Taxes=(Av. Tax Rate for ISD + County Rate)*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

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%

2018 TIMBER VALUES

TYPE	SOIL I	SOIL II	SOIL III
PINE	437	278	215
MIXED	260	161	93
HARDWOOD	131	55	32
PINE RGT & SMZ	219	139	108
MIXED RGT & SMZ	130	81	26
HARDWOOD RGT & SMZ	66	28	16
PASTURE	180/PER ACRE		

2018 RESTRICTED-USED TIMBER VALUES

CLASS	CLASS	VALUE
SMZ-P1	RGT-P1	219
SMZ-P2	RGT-P2	139
SMZ-P3	RGT-P3	108
SMZ-M1	RGT-M1	130
SMZ-M2	RGT-M2	81
SMZ-M3	RGT-M3	26
SMZ-H1	RGT-H1	66
SMZ-H2	RGT-H2	28
SMZ-H3	RGT-H3	16

SMZ = STREAMSIDE MANAGEMENT ZONE

RGT = REFORESTATION

Tax Year

2018

Five Year Period

2013

2014

2015

2016

2017

Cap Rate

7.42%

Stumpage Prices

	Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
2013	\$29.42	\$22.23	\$11.58	\$10.74	\$31.47	\$29.00	\$6.85	\$6.99	\$7.41	\$8.53
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

Management Costs East Texas

	Pine				Mixed				Hardwood			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
2013	44.39	37.76	23.70	13.32	28.68	24.39	18.08	13.23	23.76	20.91	14.93	11.67
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	40.76	34.87	22.90	13.03	29.86	25.33	19.03	13.86	24.70	21.97	15.59	12.13

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 2017 tax year until November or December 2018. As a result, these spreadsheets use the 2016 management costs for the 2017 tax year. Values to be used in the 2018 PVS will be somewhat different when TFS's management costs for the 2017 tax year are incorporated into the 2018 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 +	207	326.13	94.84	20.14	26.35	4.30
	85 - 120	333	237.87	67.59	16.68	30.92	3.99
	50 - 85	155	167.52	65.30	4.23	25.40	3.91
	< 50	8	154.67	11.89	7.05	34.00	1.09
Mixed	120 +	51	185.35	27.40	103.99	6.27	6.57
	85 - 120	113	126.70	18.96	60.42	7.68	8.18
	50 - 85	75	88.29	22.76	25.40	7.81	7.58
	< 50	9	-19.96	7.17	18.91	1.90	-0.81
Hardwood	120 +	103	64.67	7.77	127.27	2.47	7.71
	85 - 120	261	30.73	7.92	97.62	2.22	8.02
	50 - 85	194	12.62	6.54	57.84	1.22	5.98
	< 50	64	10.82	1.77	42.94	0.82	4.26

*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											
		Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
Site Class	Number of Plots	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 +	207	328.13	67,508.91	94.84	19,631.88	20.14	4,188.98	26.35	5,454.45	4.30	890.10
85-120	333	237.87	79,210.71	67.59	22,507.47	18.68	5,554.44	30.92	10,296.38	3.99	1,328.67
50-84	155	167.52	25,965.60	65.30	10,121.50	4.23	655.65	25.40	3,937.00	3.91	606.05
<50	8	154.67	1,237.36	11.89	95.12	7.05	56.40	34.00	272.00	1.09	8.72
Totals	703		173,922.58		52,355.97		10,435.47		19,959.81		2,833.54
			+ 703		+ 703		+ 703		+ 703		+ 703
			= 247.40 bd. ft.		= 74.48 bd. ft.		= 14.84 bd. ft.		= 28.39 cu. ft.		= 4.03 cu. ft.
FOREST TYPE: MIXED											
		Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
Site Class	Number of Plots	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 +	51	185.35	9,452.85	27.40	1,397.40	103.99	5,303.49	6.27	319.77	6.57	335.07
85-120	113	126.70	14,317.10	18.98	2,142.48	60.42	6,827.46	7.68	867.84	8.18	924.34
50-84	75	88.29	6,621.75	22.76	1,707.00	25.40	1,905.00	7.81	585.75	7.58	568.50
<50	9	-19.98	-179.64	7.17	64.53	18.91	170.19	1.90	17.10	-0.81	-7.29
Totals	248		30,212.06		5,311.41		14,206.14		1,790.48		1,820.62
			+ 248		+ 248		+ 248		+ 248		+ 248
			= 121.82 bd. ft.		= 21.42 bd. ft.		= 57.28 bd. ft.		= 7.22 cu. ft.		= 7.34 cu. ft.
FOREST TYPE: HARDWOOD											
		Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
Site Class	Number of Plots	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 +	103	64.67	6,661.01	7.77	600.31	127.27	13,108.81	2.47	254.41	7.71	794.13
85-120	261	30.73	8,020.53	7.92	2,067.12	97.62	25,478.82	2.22	579.42	8.02	2,093.22
50-84	194	12.62	2,448.28	6.54	1,268.76	57.84	11,220.95	1.22	236.68	5.98	1,160.12
<50	64	10.82	682.48	1.77	113.28	42.94	2,748.16	0.82	52.48	4.26	272.64
Totals	622		17,822.30		4,249.47		52,558.75		1,122.99		4,320.11
			+ 622		+ 622		+ 622		+ 622		+ 622
			= 28.65 bd. ft.		= 6.83 bd. ft.		= 84.50 bd. ft.		= 1.81 cu. ft.		= 6.95 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

Forest Type	Board Feet per Acre per Year			Cubic Feet per Acre per Year	
	Large Pine Sawtimber	Small Pine Sawtimber	Hardwood Sawtimber	Pine Pulpwood	Hardwood Pulpwood
Pine	247.40	74.48	14.84	28.39	4.03
Mixed	121.82	21.42	57.28	7.22	7.34
Hardwood	28.65	6.83	84.50	1.81	6.95

* 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	x	Conversion Factor	=	Weighted Contribution
PINE									
11 - 12.9	5,092.1	+	30,398.7	=	16.751%	x	0.49037	=	0.08214
13 - 14.9	5,087.1	+	30,398.7	=	16.669%	x	0.52460	=	0.08745
15 - 16.9	5,034.6	+	30,398.7	=	16.562%	x	0.59120	=	0.09791
17 - 18.9	4,196.7	+	30,398.7	=	13.806%	x	0.65273	=	0.09012
19 - 20.9	3,569.3	+	30,398.7	=	11.742%	x	0.70653	=	0.08298
21 - 28.9	6,012.4	+	30,398.7	=	19.779%	x	0.81153	=	0.16051
29+	1,426.5	+	30,398.7	=	4.693%	x	0.92181	=	0.04326
	<u>30,398.7</u>				<u>100.00%</u>				<u>0.64435</u>
Weighted Conversion Factor for Large Pine Sawtimber = 0.64435									
HARDWOOD									
11 - 12.9	2,500.3	+	18,907.4	=	13.224%	x	0.46377	=	0.06133
13 - 14.9	2,939.6	+	18,907.4	=	15.547%	x	0.52923	=	0.08228
15 - 16.9	2,674.6	+	18,907.4	=	14.146%	x	0.59130	=	0.08365
17 - 18.9	2,485.2	+	18,907.4	=	13.144%	x	0.64600	=	0.08491
19 - 20.9	2,148.1	+	18,907.4	=	11.361%	x	0.69327	=	0.07876
21 - 28.9	4,737.1	+	18,907.4	=	25.054%	x	0.78412	=	0.19645
29+	1,422.5	+	18,907.4	=	7.524%	x	0.87323	=	0.06570
	<u>18,907.4</u>				<u>100.00%</u>				<u>0.65308</u>
Weighted Conversion Factor for Hardwood Sawtimber = 0.65308									

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	x	Ton Conversion Factor	=	Growth In Tons

Large Pine Sawtimber	247.40	x	0.64435	=	159.41	+	1,000	=	0.15941	x	8.00	=	1.2753
Hardwood Sawtimber	14.84	x	0.65308	=	9.69	+	1,000	=	0.00969	x	9.00	=	0.0872

	MBF International 1/4" Rule		Weighted Doyle Conversion Factor*	=	MBF Doyle Rule	+	MBF Conversion	=	Growth In Board Feet	x	Ton Conversion Factor	=	Growth In Tons
Small Pine Sawtimber					74.48	+	500	=	0.14896	x	2.70	=	0.4022
Pine Pulpwood			28.39			+	81	=	0.35049	x	2.70	=	0.9463
Hardwood Pulpwood			4.03			+	80	=	0.05038	x	2.80	=	0.1411

FOREST TYPE: MIXED													
Forest Product	MBF International 1/4" Rule		Weighted Doyle Conversion Factor*	=	MBF Doyle Rule	+	MBF Conversion	=	Growth In Board Feet	x	Ton Conversion Factor	=	Growth In Tons

Large Pine Sawtimber	121.82	x	0.64435	=	78.49	+	1,000	=	0.07849	x	8.00	=	0.6279
Hardwood Sawtimber	57.28	x	0.65308	=	37.41	+	1,000	=	0.03741	x	9.00	=	0.3367

	MBF International 1/4" Rule		Weighted Doyle Conversion Factor*	=	MBF Doyle Rule	+	MBF Conversion	=	Growth In Board Feet	x	Ton Conversion Factor	=	Growth In Tons
Small Pine Sawtimber					21.42	+	500	=	0.04284	x	2.70	=	0.1157
Pine Pulpwood			7.22			+	81	=	0.08914	x	2.70	=	0.2407
Hardwood Pulpwood			7.34			+	80	=	0.09175	x	2.80	=	0.2569

FOREST TYPE: HARDWOOD													
Forest Product	MBF International 1/4" Rule		Weighted Doyle Conversion Factor*	=	MBF Doyle Rule	+	MBF Conversion	=	Growth In Board Feet	x	Ton Conversion Factor	=	Growth In Tons

Large Pine Sawtimber	28.65	x	0.64435	=	18.46	+	1,000	=	0.01846	x	8.00	=	0.1477
Hardwood Sawtimber	84.50	x	0.65308	=	55.19	+	1,000	=	0.05519	x	9.00	=	0.4967

	MBF International 1/4" Rule		Weighted Doyle Conversion Factor*	=	MBF Doyle Rule	+	MBF Conversion	=	Growth In Board Feet	x	Ton Conversion Factor	=	Growth In Tons
Small Pine Sawtimber					6.83	+	500	=	0.01366	x	2.70	=	0.0369
Pine Pulpwood			1.81			+	81	=	0.02235	x	2.70	=	0.0603
Hardwood Pulpwood			6.95			+	80	=	0.08688	x	2.80	=	0.2433

*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	1.2753	0.4022	0.0872	0.9463	0.1411
Mixed	0.6279	0.1157	0.3367	0.2407	0.2569
Hardwood	0.1477	0.0369	0.4967	0.0603	0.2433

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

Year	Large Pine Sawtimber			Small Pine Sawtimber			Hardwood Sawtimber		
	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
2013	\$29.42	\$22.23	\$25.83	\$11.58	\$10.74	\$11.16	\$31.47	\$29.00	\$30.24
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

Year	Pine Pulpwood			Hardwood Pulpwood		
	Unweighted Average Prices	Weighted Average Prices	Average of Unweighted and Weighted Prices	Unweighted Average Prices	Weighted Average Prices	Average of Unweighted and Weighted Prices
2013	\$6.85	\$6.99	\$6.92	\$7.41	\$8.53	\$7.97
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

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

County	Number of Privately Owned Acres (OODB) by Size Class							All Classes
	165	120-185	85-20	50-95	50	50	50	
Anderson	15.7	70.5	151.3	122.6	15.7			375.9
Angelina	20.2	93.6	172.9	27.4	2.3			316.3
Bowie	11.3	22.6	118.0	69.6	11.2			232.7
Camp	2.8	8.0	19.4	10.5	0.0			40.6
Cass	14.9	93.3	215.1	89.3	13.7			426.3
Chambers	0.0	1.8	7.3	16.7	3.0			28.8
Cherokee	13.4	93.9	194.2	88.6	3.7			393.7
Franklin	2.1	1.2	27.0	38.9	14.9			84.1
Gregg	3.3	12.8	52.5	18.9	0.0			87.5
Grimes	0.0	8.8	29.9	77.7	27.4			143.8
Hardin	12.7	83.4	194.9	139.2	15.1			445.3
Harris	3.6	16.0	62.2	61.8	8.8			152.4
Harrison	12.9	93.7	210.1	51.1	3.1			370.9
Henderson	0.7	4.5	30.3	71.7	74.8			182.1
Houston	4.1	47.5	166.7	87.9	9.3			315.5
Jasper	28.3	88.7	185.9	151.6	12.9			467.3
Jefferson	4.3	13.2	21.8	19.9	6.0			65.2
Leon	0.0	7.1	64.0	138.2	100.3			309.5
Liberty	21.7	64.2	131.6	123.1	25.2			365.8
Madison	2.0	2.3	22.9	36.3	10.0			73.5
Marion	4.7	53.3	112.5	32.2	1.2			203.9
Montgomery	6.5	48.4	167.7	92.3	25.2			340.0
Morris	1.2	7.9	27.6	21.2	0.6			58.5
Nacogdoches	27.4	129.9	201.9	33.7	4.3			397.2
Newton	21.3	121.9	217.8	149.0	11.0			521.0
Orange	2.5	23.8	39.9	34.3	4.3			104.8
Panola	19.2	106.8	188.6	43.2	2.4			360.1
Polk	37.6	113.3	233.8	135.2	10.6			530.4
Red River	4.3	12.3	109.1	168.7	31.6			326.0
Rusk	16.9	82.5	144.7	80.0	6.1			330.1
Sabine	14.2	67.1	101.9	8.1	0.0			191.3
San Augustine	16.7	62.2	113.2	6.7	1.0			199.9
San Jacinto	8.6	41.3	100.5	58.9	11.1			220.4
Shelby	24.6	75.8	133.3	25.1	0.0			258.9
Smith	4.2	35.1	122.3	74.4	12.6			248.6
Titus	0.0	13.0	36.6	38.5	10.6			98.7
Trinity	20.9	64.5	125.2	52.9	2.7			266.1
Tyler	16.1	102.1	212.6	153.5	8.7			493.0
Upshur	9.5	36.2	104.1	47.4	5.7			203.0
Van Zandt	0.0	0.0	44.1	56.2	37.9			138.2
Walker	8.1	41.3	123.8	80.9	12.0			266.0
Waller	0.8	3.5	29.5	24.0	11.7			69.4
Wood	0.2	25.3	125.1	62.7	15.0			228.2
All Counties	439.4	2,084.4	4,893.8	2,919.7	583.6			10,931.0

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

Growth Potentials (County/ Soil Type)	Potential (Cubic Feet) of Growth x Number of Acres (000's)					Total
	183	163	123	85	60	
	166+	120-166	85-120	60-85	<60	
Anderson	2,560.0	11,487.4	18,615.4	10,422.4	943.4	44,028.7
Angelina	3,288.6	15,251.9	21,267.1	2,327.4	136.8	42,271.9
Bowie	1,841.5	3,684.7	14,511.7	5,915.9	674.4	26,628.2
Camp	449.9	1,309.0	2,380.6	888.6	0.0	5,028.1
Cass	2,424.2	15,206.1	26,460.8	7,588.3	824.1	52,503.4
Chambers	0.0	289.7	899.4	1,422.6	177.1	2,788.8
Cherokee	2,181.4	15,304.2	23,881.7	7,529.4	223.2	49,119.9
Franklin	339.0	197.9	3,325.8	3,304.4	893.5	8,060.7
Gregg	537.0	2,087.0	6,454.8	1,608.3	0.0	10,687.1
Grimes	0.0	1,435.7	3,682.1	6,603.8	1,644.3	13,365.8
Hardin	2,076.3	13,599.4	23,978.4	11,828.3	903.1	52,385.5
Harris	593.5	2,605.3	7,648.3	5,250.5	526.5	16,624.0
Harrison	2,107.5	15,269.9	25,843.7	4,342.1	184.5	47,747.7
Henderson	117.4	741.0	3,729.8	6,093.6	4,486.8	15,168.5
Houston	664.5	7,748.0	20,503.6	7,467.8	558.4	36,942.3
Jasper	4,615.9	14,451.1	22,860.0	12,884.7	772.0	55,583.7
Jefferson	707.4	2,148.2	2,675.5	1,694.6	362.3	7,588.0
Leon	0.0	1,158.8	7,867.0	11,745.1	6,018.2	26,789.1
Liberty	3,536.2	10,469.8	16,190.6	10,461.8	1,510.3	42,168.8
Madison	332.5	368.5	2,814.8	3,085.3	602.0	7,203.2
Marion	773.8	8,686.0	13,839.0	2,735.0	72.0	26,105.8
Montgomery	1,054.4	7,896.8	20,625.3	7,842.1	1,509.9	38,928.6
Morris	198.3	1,280.3	3,400.3	1,804.0	36.0	6,718.9
Nacogdoches	4,474.2	21,173.1	24,830.3	2,861.2	259.2	53,598.0
Newton	3,476.9	19,868.6	26,787.5	12,663.5	659.5	63,456.0
Orange	404.2	3,875.5	4,902.0	2,918.6	259.1	12,359.4
Panola	3,125.1	17,404.1	23,203.1	3,670.1	141.6	47,544.1
Polk	6,124.1	18,461.4	28,758.3	11,489.4	636.6	65,469.9
Red River	705.0	1,997.7	13,422.7	14,343.6	1,893.5	32,362.4
Rusk	2,750.1	13,445.5	17,802.9	6,797.3	364.8	41,160.6
Sabine	2,316.2	10,936.1	12,532.3	688.0	0.0	26,472.6
San Augustine	2,730.1	10,136.8	13,925.6	566.4	62.4	27,421.3
San Jacinto	1,395.9	6,729.7	12,364.6	5,006.0	665.5	26,161.6
Shelby	4,012.1	12,359.1	16,395.9	2,136.4	0.0	34,903.5
Smith	688.3	5,727.6	15,037.5	6,321.7	756.4	28,531.6
Titus	0.0	2,116.0	4,500.8	3,272.6	638.7	10,528.1
Trinity	3,399.8	10,510.4	15,402.3	4,492.8	162.1	33,967.4
Tyler	2,631.8	16,638.2	26,146.8	13,048.8	523.9	58,989.5
Upshur	1,544.7	5,902.7	12,806.5	4,029.9	344.1	24,627.9
Van Zandt	0.0	0.0	5,425.8	4,776.7	2,275.3	12,477.7
Walker	1,320.8	6,727.6	15,224.2	6,877.6	717.3	30,867.6
Waller	102.6	571.3	3,632.0	2,041.5	701.8	7,049.2
Wood	26.1	4,127.9	15,384.2	5,329.0	897.5	25,764.7
All Counties	71,627.5	341,386.0	601,941.1	248,177.2	35,018.1	1,298,150.0

1,298,150.0 + 10,931.0 = 118.76 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	+	118.76	=	1.37
II	123	+	118.76	=	1.04
III	85	+	118.76	=	0.72
IV	60	+	118.76	=	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	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
2013	\$47.74	x 1.37	= \$65.40	\$47.74	x 1.04	= \$49.65	\$47.74	x 0.72	= \$34.37	\$47.74	x 0.51	= \$24.35
2014	\$56.03	x 1.37	= \$76.76	\$56.03	x 1.04	= \$58.27	\$56.03	x 0.72	= \$40.34	\$56.03	x 0.51	= \$28.58
2015	\$61.85	x 1.37	= \$84.73	\$61.85	x 1.04	= \$64.32	\$61.85	x 0.72	= \$44.53	\$61.85	x 0.51	= \$31.54
2016	\$54.52	x 1.37	= \$74.69	\$54.52	x 1.04	= \$56.70	\$54.52	x 0.72	= \$39.25	\$54.52	x 0.51	= \$27.81
2017	\$48.64	x 1.37	= \$66.64	\$48.64	x 1.04	= \$50.59	\$48.64	x 0.72	= \$35.02	\$48.64	x 0.51	= \$24.81

MIXED												
Soil Productivity Class	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
2013	\$31.41	x 1.37	= \$43.03	\$31.41	x 1.04	= \$32.67	\$31.41	x 0.72	= \$22.62	\$31.41	x 0.51	= \$16.02
2014	\$36.52	x 1.37	= \$50.03	\$36.52	x 1.04	= \$37.98	\$36.52	x 0.72	= \$26.29	\$36.52	x 0.51	= \$18.63
2015	\$41.77	x 1.37	= \$57.22	\$41.77	x 1.04	= \$43.44	\$41.77	x 0.72	= \$30.07	\$41.77	x 0.51	= \$21.30
2016	\$37.01	x 1.37	= \$50.70	\$37.01	x 1.04	= \$38.49	\$37.01	x 0.72	= \$26.65	\$37.01	x 0.51	= \$18.88
2017	\$31.63	x 1.37	= \$43.33	\$31.63	x 1.04	= \$32.80	\$31.63	x 0.72	= \$22.77	\$31.63	x 0.51	= \$16.13

HARWOOD												
Soil Productivity Class	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
2013	\$21.61	x 1.37	= \$29.61	\$21.61	x 1.04	= \$22.47	\$21.61	x 0.72	= \$15.56	\$21.61	x 0.51	= \$11.02
2014	\$24.96	x 1.37	= \$34.20	\$24.96	x 1.04	= \$25.96	\$24.96	x 0.72	= \$17.97	\$24.96	x 0.51	= \$12.73
2015	\$29.48	x 1.37	= \$40.39	\$29.48	x 1.04	= \$30.66	\$29.48	x 0.72	= \$21.23	\$29.48	x 0.51	= \$15.03
2016	\$26.86	x 1.37	= \$36.80	\$26.86	x 1.04	= \$27.93	\$26.86	x 0.72	= \$19.34	\$26.86	x 0.51	= \$13.70
2017	\$21.49	x 1.37	= \$29.44	\$21.49	x 1.04	= \$22.35	\$21.49	x 0.72	= \$15.47	\$21.49	x 0.51	= \$10.96

*From Table 8

**From Table 10

TABLE 12.
Average Annual Timber Production Costs

Year	Production Cost
2013	\$37.76
2014	\$33.71
2015	\$35.00
2016	\$34.87
2017	\$34.87

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 2017 tax year until November or December 2018. As a result, these spreadsheets use the 2016 management costs for the 2017 tax year. Values to be used in the 2018 PVS will be somewhat different when TFS's management costs for the 2017 tax year are incorporated into the 2018 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	Factor	Prorated Cost	Cost	Factor	Prorated Cost
2013	x	=	\$44.39	x	=	\$37.76	x	=	\$23.70	x	=	\$13.32
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	=	\$40.76	x	=	\$34.87	x	=	\$22.90	x	=	\$13.03
MIXED												
Soil Productivity Class	I			II			III			IV		
Year	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost
2013	x	=	\$28.68	x	=	\$24.39	x	=	\$18.08	x	=	\$13.23
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	=	\$29.86	x	=	\$25.33	x	=	\$19.03	x	=	\$13.86
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
2013	x	=	\$23.76	x	=	\$20.91	x	=	\$14.93	x	=	\$11.67
2014	x	=	\$23.54	x	=	\$20.90	x	=	\$15.22	x	=	\$12.10
2015	x	=	\$25.19	x	=	\$23.22	x	=	\$16.22	x	=	\$12.56
2016	x	=	\$24.70	x	=	\$21.97	x	=	\$15.59	x	=	\$12.13
2017	x	=	\$24.70	x	=	\$21.97	x	=	\$15.59	x	=	\$12.13

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.

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TABLE 14.
Calculation of Average Annual Net Income

SOFT 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
2013	\$65.40	- 44.39 =	\$21.01	\$49.65	- 37.76 =	\$11.89	\$34.37	- 23.70 =	\$10.67	\$24.35	- 13.32 =	\$11.03
2014	\$76.76	- 38.92 =	\$37.84	\$58.27	- 33.71 =	\$24.56	\$40.34	- 21.73 =	\$18.61	\$28.58	- 12.34 =	\$16.24
2015	\$84.73	- 41.15 =	\$43.58	\$64.32	- 35.00 =	\$29.32	\$44.53	- 22.56 =	\$21.97	\$31.54	- 13.01 =	\$18.53
2016	\$74.69	- 40.76 =	\$33.93	\$56.70	- 34.87 =	\$21.83	\$39.25	- 22.90 =	\$16.35	\$27.81	- 13.03 =	\$14.78
2017	\$66.64	- 40.76 =	\$25.88	\$50.59	- 34.87 =	\$15.72	\$35.02	- 22.90 =	\$12.12	\$24.81	- 13.03 =	\$11.78
5 Year Average			\$32.45			\$20.66			\$15.94			\$14.47
MIXED												
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
2013	\$43.03	- 28.68 =	\$14.35	\$32.67	- 24.39 =	\$8.28	\$22.62	- 18.08 =	\$4.54	\$16.02	- 13.23 =	\$2.79
2014	\$50.03	- 28.28 =	\$21.75	\$37.98	- 24.11 =	\$13.87	\$26.29	- 18.33 =	\$7.96	\$18.63	- 13.55 =	\$5.08
2015	\$57.22	- 31.26 =	\$25.96	\$43.44	- 26.48 =	\$16.96	\$30.07	- 19.48 =	\$10.59	\$21.30	- 14.48 =	\$6.82
2016	\$50.70	- 29.86 =	\$20.84	\$38.49	- 25.33 =	\$13.16	\$26.65	- 19.03 =	\$7.62	\$18.88	- 13.88 =	\$5.02
2017	\$43.33	- 29.86 =	\$13.47	\$32.90	- 25.33 =	\$7.57	\$22.77	- 19.03 =	\$3.74	\$16.13	- 13.86 =	\$2.27
5 Year Average			\$19.27			\$11.97			\$6.89			\$4.40
HARDWOOD												
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
2013	\$29.81	- 23.76 =	\$5.85	\$22.47	- 20.91 =	\$1.56	\$15.56	- 14.93 =	\$0.63	\$11.02	- 11.87 =	-\$0.65
2014	\$34.20	- 23.54 =	\$10.66	\$25.96	- 20.90 =	\$5.06	\$17.97	- 15.22 =	\$2.75	\$12.73	- 12.10 =	\$0.63
2015	\$40.39	- 25.19 =	\$15.20	\$30.66	- 23.22 =	\$7.44	\$21.23	- 16.22 =	\$5.01	\$15.03	- 12.56 =	\$2.47
2016	\$36.80	- 24.70 =	\$12.10	\$27.93	- 21.97 =	\$5.96	\$19.34	- 15.59 =	\$3.75	\$13.70	- 12.13 =	\$1.57
2017	\$28.44	- 24.70 =	\$4.74	\$22.35	- 21.97 =	\$0.38	\$15.47	- 15.59 =	-\$0.12	\$10.98	- 12.13 =	-\$1.17
5 Year Average			\$9.71			\$4.08			\$2.40			\$0.57

*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 2017 tax year until November or December 2018. As a result, these spreadsheets use the 2016 management costs for the 2017 tax year. Values to be used in the 2018 PVS will be somewhat different when TFS's management costs for the 2017 tax year are incorporated into the 2018 PVS.

**TABLE 15.
Calculation of Timber Productivity Values**

CAPITALIZATION RATE

7.42% 2018 Value

Forest Type	Productivity Class							
	I		II		III		IV	
	Net Income	Productivity Value	Net Income	Productivity Value	Net Income	Productivity Value	Net Income	Productivity Value
Pine	\$32.45	\$437.33	\$20.66	\$278.44	\$15.94	\$214.82	\$14.47	\$195.01
Mixed	\$19.27	\$259.70	\$11.97	\$161.32	\$6.89	\$92.86	\$4.40	\$59.30
Hardwood	\$9.71	\$130.86	\$4.08	\$54.99	\$2.40	\$32.35	\$0.57	\$7.68

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