NEWTON CENTRAL APPRAISAL DISTRICT

AGRICULTURE, TIMBER AND RURAL LAND

VALUATION REPORT

2017 APPRAISAL YEAR

SUMMARY

OPEN-SPACE VALUATION

Agriculture Values for 2017 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 2017 Timber Productivity Values, we used the Timber Production Value Spreadsheet and Capitalization Rate of 7.39% 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 7.53%

Management costs have remained level. Futhermore, the Capitalization Rate for 2017 fell .14%

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

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

2017 AG PRODUCTIVITY VALUES

PASTURE 180

2017 AG CALUCLATIONS

PASTURE	YEAR	RENT	MGMT. FEE	R.E. TAXES	NET TO LAND	
	2011	$20.00	$ 1.50	$3.31	$15.19	
	2012	$20.00	$ 1.50	$3.23	$15.27	
	2013	$25.00	$1.75	$3.28	$19.97	
	2014	$25.00	$1.75	$3.39	$19.86	5 yr Av. net
	2015	$25.00	$1.75	$3.55	$19.70	$17.99
					$89.99	
			Capitalized $ 179.98		$ 180.00/acre	

Ag Land Capitalization Rate used for 2017 10.00%

Management Fee is equal to 7% of Revenue

2011 Calculations for Productivity Values

School district	2011 Tax Rate
Newton ISD	1.24
Burkeville ISD	1.1835
Deweyville ISD	1.29
Total	3.7135
Average ISD Tax Rate	1.2378
Newton County + Lateral Road	.602341

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 3.3122

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:

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

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:

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

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

2017 TIMBER VALUES

TYPE	SOIL I	SOIL II	SOIL III
PINE	428	271	214
MIXED	272	171	101
HARDWOOD	122	48	28
PINE RGT & SMZ	214	136	107
MIXED RGT & SMZ	136	86	51
HARDWOOD RGT & SMZ	61	24	14

PASTURE 180/PER ACRE

2017 RESTRICTED-USED TIMBER VALUES

CLASS	CLASS	VALUE
SMZ-P1	RGT-P1	214
SMZ-P2	RGT-P2	136
SMZ-P3	RGT-P3	107
SMZ-M1	RGT-M1	136
SMZ-M2	RGT-M2	86
SMZ-M3	RGT-M3	51
SMZ-H1	RGT-H1	61
SMZ-H2	RGT-H2	24
SMZ-H3	RGT-H3	14

SMZ = STREAMSIDE MANAGEMENT ZONE

RGT = REFORESTATION

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%

Tax Year

2017

Five Year Period

2012
2013
2014
2015
2016

Cap Rate

7.39%

Stumpage Prices

	Large Pine Sawtimber		Small Pine Sawtimber		Hardwood Sawtimber		Pine Pulpwood		Hardwood Pulpwood	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
2012	$28.96	$24.38	$10.65	$11.11	$27.59	$25.74	$6.14	$6.47	$7.34	$8.30
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

Management Costs East Texas

	Pine				Mixed				Hardwood			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
2012	41.97	35.41	21.40	11.65	26.81	22.34	16.10	11.39	21.79	18.74	12.99	9.76
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	41.15	35.00	22.56	13.01	31.26	26.48	19.48	14.48	25.19	23.22	16.22	12.56

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 2016 tax year until November or December 2017. As as result, these spreadsheets use the 2015 management costs for the 2016 tax year. Values to be used in the 2017 PVS will be somewhat different when TFS's management costs for the 2016 tax year are incorporated into the 2017 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 +	228	316.55	97.92	19.83	29.87	4.42
	85 - 120	323	235.36	64.50	16.46	31.27	3.96
	50 - 85	144	164.32	65.08	4.99	23.44	3.91
	< 50	7	145.16	2.05	7.05	39.24	0.87
Mixed	120 +	56	185.74	30.50	99.59	6.59	8.07
	85 - 120	112	127.23	19.12	58.11	7.80	8.35
	50 - 85	73	96.05	21.05	24.07	8.32	7.75
	< 50	9	2.78	9.41	27.37	3.18	1.00
Hardwood	120 +	111	64.11	8.48	128.36	2.65	8.51
	85 - 120	256	29.17	8.53	94.59	2.16	7.95
	50 - 85	193	12.41	6.53	59.49	1.16	5.92
	< 50	66	11.47	1.69	28.08	0.94	4.35

*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 +	228	316.55	72,173.40	97.92	22,325.76	19.83	4,521.24	29.87	6,810.36	4.42	1,007.76
85-120	323	235.36	76,021.28	64.50	20,833.50	16.46	5,316.58	31.27	10,100.21	3.96	1,279.08
50-84	144	164.32	23,662.08	65.08	9,371.52	4.99	718.56	23.44	3,375.36	3.91	563.04
<50	7	145.16	1,016.12	2.05	14.35	7.05	49.35	39.24	274.68	0.87	6.09
Totals	702		172,872.88		52,545.13		10,605.73		20,560.61		2,855.97
			+ 702		+ 702		+ 702		+ 702		+ 702
			= 246.26 bd. ft.		= 74.85 bd. ft.		= 15.11 bd. ft.		= 29.29 cu. ft.		= 4.07 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 +	56	185.74	10,401.44	30.50	1,708.00	99.59	5,577.04	6.59	369.04	8.07	451.92
85-120	112	127.23	14,249.76	19.12	2,141.44	58.11	6,508.32	7.80	873.60	8.35	935.20
50-84	73	96.05	7,011.65	21.05	1,536.65	24.07	1,757.11	8.32	607.36	7.75	565.75
<50	9	2.78	25.02	9.41	84.69	27.37	246.33	3.18	28.62	1.00	9.00
Totals	250		31,687.87		5,470.78		14,088.80		1,878.62		1,961.87
			+ 250		+ 250		+ 250		+ 250		+ 250
			= 126.75 bd. ft.		= 21.88 bd. ft.		= 56.36 bd. ft.		= 7.51 cu. ft.		= 7.85 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 +	111	64.11	7,116.21	8.48	941.28	128.36	14,247.96	2.65	294.15	8.51	944.61
85-120	256	29.17	7,467.52	8.53	2,183.68	94.59	24,215.04	2.16	552.96	7.95	2,035.20
50-84	193	12.41	2,395.13	6.53	1,260.29	59.49	11,481.57	1.16	223.88	5.92	1,142.56
<50	66	11.47	757.02	1.69	111.54	28.08	1,853.28	0.94	62.04	4.35	287.10
Totals	626		17,735.88		4,496.79		51,797.85		1,133.03		4,409.47
			+ 626		+ 626		÷ 626		+ 626		+ 626
			= 28.33 bd. ft.		= 7.18 bd. ft.		= 82.74 bd. ft.		= 1.81 cu. ft.		= 7.04 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	246.26	74.85	15.11	29.29	4.07
Mixed	126.75	21.88	56.36	7.51	7.85
Hardwood	28.33	7.18	82.74	1.81	7.04

* 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	5,059.8	÷	30,335.2	=	16.680%	x	0.49037	=	0.08179
13 - 14.9	5,044.3	÷	30,335.2	=	16.629%	x	0.52460	=	0.08724
15 - 16.9	5,038.4	÷	30,335.2	=	16.609%	x	0.59120	=	0.09819
17 - 18.9	4,231.6	÷	30,335.2	=	13.950%	x	0.65273	=	0.09106
19 - 20.9	3,526.1	÷	30,335.2	=	11.624%	x	0.70653	=	0.08213
21 - 28.9	6,040.0	÷	30,335.2	=	19.911%	x	0.81153	=	0.16158
29+	1,394.9	÷	30,335.2	=	4.598%	x	0.92181	=	0.04238
	30,335.2				100.00%				0.64437
Weighted Conversion Factor for Large Pine Sawtimber = 0.64437									
HARDWOOD									
11 - 12.9	2,541.0	÷	19,177.9	=	13.250%	x	0.46377	=	0.06145
13 - 14.9	2,970.3	÷	19,177.9	=	15.488%	x	0.52923	=	0.08197
15 - 16.9	2,726.4	÷	19,177.9	=	14.216%	x	0.59130	=	0.08406
17 - 18.9	2,542.8	÷	19,177.9	=	13.259%	x	0.64600	=	0.08565
19 - 20.9	2,171.5	÷	19,177.9	=	11.323%	x	0.69327	=	0.07850
21 - 28.9	4,784.8	÷	19,177.9	=	24.949%	x	0.78412	=	0.19563
29+	1,441.1	÷	19,177.9	=	7.514%	x	0.87323	=	0.06561
	19,177.9				100.00%				0.65287
Weighted Conversion Factor for Hardwood Sawtimber = 0.65287									

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	246.26	x	0.64437	=	158.68	÷	1,000	=	0.15868	x	8.00	=	1.2694
Hardwood Sawtimber	15.11	x	0.65287	=	9.86	÷	1,000	=	0.00986	x	9.00	=	0.0887

	Cubic Feet*	MBF International 1/4" Rule*		Cord Conversion Factor		Growth in Cords		Ton Conversion Factor		Growth In Tons
Small Pine Sawtimber		74.85	÷	500	=	0.14970	x	2.70		0.4042
Pine Pulpwood	29.29		÷	81	=	0.36160	x	2.70		0.9763
Hardwood Pulpwood	4.07		÷	80	=	0.05088	x	2.80		0.1425

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	126.75	x	0.64437	=	81.67	÷	1,000	=	0.08167	x	8.00	=	0.6534
Hardwood Sawtimber	56.36	x	0.65287	=	36.80	÷	1,000	=	0.03680	x	9.00	=	0.3312

	Cubic Feet*	MBF International 1/4" Rule*		Cord Conversion Factor		Growth in Cords		Ton Conversion Factor		Growth In Tons
Small Pine Sawtimber		21.88	÷	500	=	0.04376	x	2.70	=	0.1182
Pine Pulpwood	7.51		÷	81	=	0.09272	x	2.70	=	0.2503
Hardwood Pulpwood	7.85		÷	80	=	0.09813	x	2.80	=	0.2748

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	28.33	x	0.64437	=	18.26	÷	1,000	=	0.01826	x	8.00	=	0.1461
Hardwood Sawtimber	82.74	x	0.65287	=	54.02	÷	1,000	=	0.05402	x	9.00	=	0.4862

	Cubic Feet*	MBF International 1/4" Rule*		Cord Conversion Factor		Growth in Cords		Ton Conversion Factor		Growth In Tons
Small Pine Sawtimber		7.18	÷	500	=	0.01436	x	2.70	=	0.0388
Pine Pulpwood	1.81		÷	81	=	0.02235	x	2.70	=	0.0603
Hardwood Pulpwood	7.04		÷	80	=	0.08800	x	2.80	=	0.2464

*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	1.2694	0.4042	0.0887	0.9763	0.1425
Mixed	0.6534	0.1182	0.3312	0.2503	0.2748
Hardwood	0.1461	0.0388	0.4862	0.0603	0.2464

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
2012	$28.96	$24.38	$26.67	$10.65	$11.11	$10.88	$27.59	$25.74	$26.67
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

	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
2012	$6.14	$6.47	$6.31	$7.34	$8.30	$7.82
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

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 **	=	
2012	(1.2694	x	$26.67	)+(	0.4042	x	$10.88	)+(	0.0887	x	$26.67	)+(	0.9763	x	$6.31	)+(	0.1425	x	$7.82	) =	$47.89
2013	(1.2694	x	$25.83	)+(	0.4042	x	$11.16	)+(	0.0887	x	$30.24	)+(	0.9763	x	$6.92	)+(	0.1425	x	$7.97	) =	$47.88
2014	(1.2694	x	$29.83	)+(	0.4042	x	$13.30	)+(	0.0887	x	$34.46	)+(	0.9763	x	$8.71	)+(	0.1425	x	$9.91	) =	$56.22
2015	(1.2694	x	$32.62	)+(	0.4042	x	$14.62	)+(	0.0887	x	$39.92	)+(	0.9763	x	$9.23	)+(	0.1425	x	$15.34	) =	$62.06
2016	(1.2694	x	$28.17	)+(	0.4042	x	$13.04	)+(	0.0887	x	$38.66	)+(	0.9763	x	$9.04	)+(	0.1425	x	$10.16	) =	$54.74

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 **	=	
2012	(0.6534	x	$26.67	)+(	0.1182	x	$10.88	)+(	0.3312	x	$26.67	)+(	0.2503	x	$6.31	)+(	0.2748	x	$7.82	) =	$31.28
2013	(0.6534	x	$25.83	)+(	0.1182	x	$11.16	)+(	0.3312	x	$30.24	)+(	0.2503	x	$6.92	)+(	0.2748	x	$7.97	) =	$32.14
2014	(0.6534	x	$29.83	)+(	0.1182	x	$13.30	)+(	0.3312	x	$34.46	)+(	0.2503	x	$8.71	)+(	0.2748	x	$9.91	) =	$37.37
2015	(0.6534	x	$32.62	)+(	0.1182	x	$14.62	)+(	0.3312	x	$39.92	)+(	0.2503	x	$9.23	)+(	0.2748	x	$15.34	) =	$42.79
2016	(0.6534	x	$28.17	)+(	0.1182	x	$13.04	)+(	0.3312	x	$38.66	)+(	0.2503	x	$9.04	)+(	0.2748	x	$10.16	) =	$37.80

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 **	=	
2012	(0.1461	x	$26.67	)+(	0.0388	x	$10.88	)+(	0.4862	x	$26.67	)+(	0.0603	x	$6.31	)+(	0.2464	x	$7.82	) =	$19.60
2013	(0.1461	x	$25.83	)+(	0.0388	x	$11.16	)+(	0.4862	x	$30.24	)+(	0.0603	x	$6.92	)+(	0.2464	x	$7.97	) =	$21.28
2014	(0.1461	x	$29.83	)+(	0.0388	x	$13.30	)+(	0.4862	x	$34.46	)+(	0.0603	x	$8.71	)+(	0.2464	x	$9.91	) =	$24.60
2015	(0.1461	x	$32.62	)+(	0.0388	x	$14.62	)+(	0.4862	x	$39.92	)+(	0.0603	x	$9.23	)+(	0.2464	x	$15.34	) =	$29.09
2016	(0.1461	x	$28.17	)+(	0.0388	x	$13.04	)+(	0.4862	x	$38.66	)+(	0.0603	x	$9.04	)+(	0.2464	x	$10.16	) =	$26.48

* 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	16.9	77.4	150.1	117.6	15.7	377.8
Angelina	27.6	94.2	167.9	25.4	2.3	317.4
Bowie	11.3	25.1	121.0	65.0	11.2	233.6
Camp	2.8	9.3	18.1	10.5	0.0	40.6
Cass	22.3	97.6	208.6	85.6	13.7	427.8
Chambers	0.0	1.8	7.3	16.2	3.5	28.8
Cherokee	15.8	99.6	190.1	84.9	3.7	394.1
Franklin	2.1	1.2	27.0	37.8	16.0	84.1
Gregg	3.3	12.8	52.6	19.0	0.0	87.7
Grimes	0.0	9.8	33.7	73.8	28.8	146.0
Hardin	14.9	94.7	189.7	131.1	17.6	448.0
Harris	3.6	17.3	66.9	55.3	8.8	151.8
Harrison	12.6	100.9	206.2	48.7	3.1	371.5
Henderson	2.0	7.0	22.5	70.8	79.0	181.3
Houston	5.0	56.6	160.7	87.4	8.1	317.8
Jasper	32.0	90.0	179.6	153.8	14.1	469.5
Jefferson	4.3	13.4	22.7	18.7	5.9	65.0
Leon	0.0	8.0	65.1	131.4	104.8	309.4
Liberty	22.9	67.0	137.2	122.6	22.6	372.4
Madison	2.0	2.3	24.0	34.4	11.3	74.0
Marion	7.2	54.5	111.8	29.8	1.2	204.6
Montgomery	6.5	48.8	171.6	89.7	25.2	341.8
Morris	1.2	10.3	25.2	21.4	0.6	58.7
Nacogdoches	34.8	131.6	193.0	34.1	4.3	397.9
Newton	24.1	131.2	214.4	147.7	6.1	523.4
Orange	2.5	26.2	39.4	32.8	5.6	106.4
Panola	24.4	116.1	173.1	45.7	2.4	361.6
Polk	41.6	130.0	223.2	124.3	10.6	529.8
Red River	4.3	13.4	104.7	174.1	31.6	328.1
Rusk	23.3	83.9	142.6	77.2	6.1	333.2
Sabine	19.3	68.7	98.4	5.4	0.0	191.8
San Augustine	16.9	66.2	111.9	5.3	1.0	201.3
San Jacinto	8.6	47.8	100.3	54.2	11.1	221.9
Shelby	27.2	82.2	125.4	24.8	0.0	259.6
Smith	4.2	41.5	117.0	75.7	12.6	251.0
Titus	0.0	14.4	35.3	38.7	10.7	99.0
Trinity	23.3	68.2	123.0	48.4	2.7	265.6
Tyler	16.1	110.0	212.4	147.7	7.4	493.7
Upshur	9.5	38.8	103.1	46.4	5.7	203.5
Van Zandt	0.0	0.0	43.0	56.4	39.6	139.0
Walker	9.7	42.3	123.8	80.7	11.9	268.2
Waller	0.6	3.5	29.5	21.6	11.7	67.0
Wood	1.1	26.5	125.2	60.6	15.0	228.3
All Counties	**508.0**	**2,242.0**	**4,798.4**	**2,832.4**	**593.2**	**10,974.0**

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

Growth Potentials →	Potential Cubic Feet of Growth x Number of Acres (000's)					
	163	163	123	85	60	
County / Soil Type	165+	120-165	85-120	50-85	<50	Total
Anderson	2,761.0	12,614.9	18,458.2	9,999.4	943.4	44,777.0
Angelina	4,492.5	15,361.3	20,656.4	2,156.4	136.8	42,803.4
Bowie	1,840.4	4,086.0	14,881.2	5,525.5	674.4	27,007.5
Camp	449.9	1,509.5	2,231.4	888.6	0.0	5,079.4
Cass	3,630.0	15,914.0	25,658.4	7,272.6	824.1	53,299.1
Chambers	0.0	289.7	903.3	1,372.9	210.1	2,775.9
Cherokee	2,583.4	16,235.7	23,379.7	7,215.2	223.2	49,637.2
Franklin	339.0	197.9	3,325.2	3,210.5	960.2	8,032.9
Gregg	537.0	2,086.5	6,470.1	1,611.7	0.0	10,705.3
Grimes	0.0	1,592.3	4,149.6	6,269.0	1,725.6	13,736.5
Hardin	2,430.9	15,431.8	23,330.7	11,144.0	1,058.6	53,396.0
Harris	593.5	2,813.4	8,226.2	4,696.3	526.5	16,855.8
Harrison	2,061.5	16,445.5	25,360.1	4,136.7	186.5	48,190.3
Henderson	318.3	1,142.9	2,766.9	6,021.7	4,737.3	14,987.1
Houston	820.0	9,225.1	19,763.9	7,431.9	485.0	37,726.0
Jasper	5,213.8	14,665.7	22,093.0	13,076.5	845.0	55,894.0
Jefferson	707.4	2,186.9	2,786.7	1,590.9	352.3	7,624.1
Leon	0.0	1,296.5	8,011.0	11,173.0	6,290.8	26,771.3
Liberty	3,738.7	10,923.8	16,877.2	10,424.7	1,354.9	43,319.3
Madison	332.5	368.5	2,957.6	2,924.8	677.4	7,260.8
Marion	1,175.7	8,883.7	13,752.7	2,536.5	72.0	26,420.6
Montgomery	1,057.5	7,952.7	21,105.2	7,625.5	1,511.1	39,252.1
Morris	198.3	1,681.5	3,100.3	1,817.2	36.0	6,833.3
Nacogdoches	5,679.4	21,452.4	23,741.6	2,899.3	259.2	54,032.0
Newton	3,933.0	21,380.4	26,369.5	12,552.2	365.5	64,600.7
Orange	404.2	4,273.4	4,841.2	2,784.1	334.8	12,637.7
Panola	3,975.3	18,916.4	21,295.4	3,883.2	141.6	48,212.0
Polk	6,778.3	21,194.2	27,459.3	10,568.3	637.8	66,637.8
Red River	705.0	2,178.6	12,881.9	14,798.6	1,894.5	32,458.7
Rusk	3,804.7	13,676.3	17,541.1	6,564.3	364.8	41,951.2
Sabine	3,143.7	11,201.3	12,107.7	457.1	0.0	26,909.8
San Augustine	2,747.0	10,793.6	13,761.3	447.5	62.4	27,811.7
San Jacinto	1,395.9	7,793.1	12,330.9	4,606.2	667.3	26,793.3
Shelby	4,436.0	13,401.7	15,419.9	2,108.7	0.0	35,366.3
Smith	688.3	6,759.3	14,389.5	6,433.1	756.7	29,026.9
Titus	0.0	2,339.8	4,345.8	3,286.2	639.6	10,611.4
Trinity	3,804.8	11,113.2	15,126.3	4,117.6	162.1	34,324.1
Tyler	2,631.8	17,937.1	26,124.2	12,555.8	445.8	59,694.6
Upshur	1,544.0	6,327.2	12,684.5	3,942.2	344.1	24,842.0
Van Zandt	0.0	0.0	5,293.0	4,791.1	2,374.0	12,458.0
Walker	1,576.3	6,895.4	15,221.6	6,855.5	711.8	31,260.6
Waller	102.6	574.5	3,627.5	1,837.6	701.8	6,843.9
Wood	174.3	4,325.6	15,396.4	5,147.9	897.3	25,941.5
All Counties	**82,806.1**	**365,439.3**	**590,203.8**	**240,758.0**	**35,592.1**	**1,314,799.3**

1,314,799.3 ÷ 10,974.0 = 119.81 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	÷	119.81	=	1.36
II	123	÷	119.81	=	1.03
III	85	÷	119.81	=	0.71
IV	60	÷	119.81	=	0.50

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
2012	$47.89	x	1.36	= $65.13	$47.89	x	1.03	= $49.33	$47.89	x	0.71	= $34.00	$47.89	x	0.50	= $23.95
2013	$47.88	x	1.36	= $65.12	$47.88	x	1.03	= $49.32	$47.88	x	0.71	= $33.99	$47.88	x	0.50	= $23.94
2014	$56.22	x	1.36	= $76.46	$56.22	x	1.03	= $57.91	$56.22	x	0.71	= $39.92	$56.22	x	0.50	= $28.11
2015	$62.06	x	1.36	= $84.40	$62.06	x	1.03	= $63.92	$62.06	x	0.71	= $44.06	$62.06	x	0.50	= $31.03
2016	$54.74	x	1.36	= $74.45	$54.74	x	1.03	= $56.38	$54.74	x	0.71	= $38.87	$54.74	x	0.50	= $27.37

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
2012	$31.28	x	1.36	= $42.54	$31.28	x	1.03	= $32.22	$31.28	x	0.71	= $22.21	$31.28	x	0.50	= $15.64
2013	$32.14	x	1.36	= $43.71	$32.14	x	1.03	= $33.10	$32.14	x	0.71	= $22.82	$32.14	x	0.50	= $16.07
2014	$37.37	x	1.36	= $50.82	$37.37	x	1.03	= $38.49	$37.37	x	0.71	= $26.53	$37.37	x	0.50	= $18.69
2015	$42.79	x	1.36	= $58.19	$42.79	x	1.03	= $44.07	$42.79	x	0.71	= $30.38	$42.79	x	0.50	= $21.40
2016	$37.80	x	1.36	= $51.41	$37.80	x	1.03	= $38.93	$37.80	x	0.71	= $26.84	$37.80	x	0.50	= $18.90

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
2012	$19.60	x	1.36	= $26.66	$19.60	x	1.03	= $20.19	$19.60	x	0.71	= $13.92	$19.60	x	0.50	= $9.80
2013	$21.28	x	1.36	= $28.94	$21.28	x	1.03	= $21.92	$21.28	x	0.71	= $15.11	$21.28	x	0.50	= $10.64
2014	$24.60	x	1.36	= $33.46	$24.60	x	1.03	= $25.34	$24.60	x	0.71	= $17.47	$24.60	x	0.50	= $12.30
2015	$29.09	x	1.36	= $39.56	$29.09	x	1.03	= $29.96	$29.09	x	0.71	= $20.65	$29.09	x	0.50	= $14.55
2016	$26.48	x	1.36	= $36.01	$26.48	x	1.03	= $27.27	$26.48	x	0.71	= $18.80	$26.48	x	0.50	= $13.24

*From Table 8
**From Table 10

TABLE 12.
Average Annual Timber Production Costs

Year	Production Cost
2012	$35.41
2013	$37.76
2014	$33.71
2015	$35.00
2016	$35.00

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 2016 tax year until November or December 2017. As a result, these spreadsheets use the 2015 management costs for the 2016 tax year. Values to be used in the 2017 PVS will be somewhat different when TFS's management costs for the 2016 tax year are incorporated into the 2017 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
2012	x	=	$41.97	x	=	$35.41	x		$21.40	x	=	$11.65
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	=	$41.15	x	=	$35.00	x		$22.56	x	=	$13.01

MIXED

Soil Productivity Class	I			II			III			IV		
Year	Cost	Factor	Prorated Cost	Cost	Factor	Prorated Cost	Cost		Prorated Cost	Cost	Factor	Prorated Cost
2012	x	=	$26.81	x	=	$22.34	x		$16.10	x	=	$11.39
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	=	$31.26	x	=	$26.48	x		$19.48	x	=	$14.48

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
2012	x	=	$21.79	x	=	$18.74	x	=	$12.99	x	=	$9.76
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	=	$25.19	x	=	$23.22	x	=	$16.22	x	=	$12.56

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 2016 tax year until November or December 2017. As a result, these spreadsheets use the 2015 management costs for the 2016 tax year. Values to be used in the 2017 PVS will be somewhat different when TFS's management costs for the 2016 tax year are incorporated into the 2017 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
2012	$65.13 -	41.97 =	$23.16	$49.33 -	35.41 =	$13.92	$34.00 -	21.40	$12.60	$23.95 -	11.65 =	$12.30
2013	$65.12 -	44.39 =	$20.73	$49.32 -	37.76 =	$11.56	$33.99 -	23.70	$10.29	$23.94 -	13.32 =	$10.62
2014	$76.46 -	38.92 =	$37.54	$57.91 -	33.71 =	$24.20	$39.92 -	21.73	$18.19	$28.11 -	12.34 =	$15.77
2015	$84.40 -	41.15 =	$43.25	$63.92 -	35.00 =	$28.92	$44.06 -	22.56	$21.50	$31.03 -	13.01 =	$18.02
2016	$74.45 -	41.15 =	$33.30	$56.38 -	35.00 =	$21.38	$38.87 -	22.56	$16.31	$27.37 -	13.01 =	$14.36
5 Year Average			**$31.60**			**$20.00**			**$15.78**			**$14.21**

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
2012	$42.54 -	26.81 =	$15.73	$32.22 -	22.34 =	$9.88	$22.21 -	16.10	$6.11	$15.64 -	11.39 =	$4.25
2013	$43.71 -	28.68 =	$15.03	$33.10 -	24.39 =	$8.71	$22.82 -	18.08	$4.74	$16.07 -	13.23 =	$2.84
2014	$50.82 -	28.28 =	$22.54	$38.49 -	24.11 =	$14.38	$26.53 -	18.33	$8.20	$18.69 -	13.55 =	$5.14
2015	$58.19 -	31.26 =	$26.93	$44.07 -	26.48 =	$17.59	$30.38 -	19.48	$10.90	$21.40 -	14.48 =	$6.92
2016	$51.41 -	31.26 =	$20.15	$38.93 -	26.48 =	$12.45	$26.84 -	19.48	$7.36	$18.90 -	14.48 =	$4.42
5 Year Average			**$20.08**			**$12.60**			**$7.46**			**$4.71**

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
2012	$26.66 -	21.79 =	$4.87	$20.19 -	18.74 =	$1.45	$13.92 -	12.99 =	$0.93	$9.80 -	9.76 =	$0.04
2013	$28.94 -	23.76 =	$5.18	$21.92 -	20.91 =	$1.01	$15.11 -	14.93 =	$0.18	$10.64 -	11.67 =	-$1.03
2014	$33.46 -	23.54 =	$9.92	$25.34 -	20.90 =	$4.44	$17.47 -	15.22 =	$2.25	$12.30 -	12.10 =	$0.20
2015	$39.56 -	25.19 =	$14.37	$29.96 -	23.22 =	$6.74	$20.65 -	16.22 =	$4.43	$14.55 -	12.56 =	$1.99
2016	$36.01 -	25.19 =	$10.82	$27.27 -	23.22 =	$4.05	$18.80 -	16.22 =	$2.58	$13.24 -	12.56 =	$0.68
5 Year Average			**$9.03**			**$3.54**			**$2.07**			**$0.38**

*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 2016 tax year until November or December 2017. As a result, these spreadsheets use the 2015 management costs for the 2016 tax year. Values to be used in the 2017 PVS will be somewhat different when TFS's management costs for the 2016 tax year are incorporated into the 2017 PVS.

TABLE 15.
Calculation of Timber Productivity Values

CAPITALIZATION RATE 7.39% 2017 Value

	Productivity Class							
	I		II		III		IV	
Forest Type	Net Income	Productivity Value	Net Income	Productivity Value	Net Income	Productivity Value	Net Income	Productivity Value
Pine	$31.60	$427.60	$20.00	$270.64	$15.78	$213.53	$14.21	$192.29
Mixed	$20.08	$271.72	$12.60	$170.50	$7.46	$100.95	$4.71	$63.73
Hardwood	$9.03	$122.19	$3.54	$47.90	$2.07	$28.01	$0.38	$5.14

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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 2016 tax year until November or December 2017. As a result, these spreadsheets use the 2015 management costs for the 2016 tax year. Values to be used in the 2017 PVS will be somewhat different when TFS's management costs for the 2016 tax year are incorporated into the 2017 PVS.