



**2022 Capitalization Rate Study
Pipelines - Liquid**

FINAL

Completed: April 21, 2022

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Pipelines - Liquid

2022 Assessment Year

Capital Structure ^[1]

Equity	55.00%
Debt	45.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	10.89%	35%
Capital Asset Pricing Model - Ex Ante ^[2]	9.03%	35%
3 Stage Dividend Discount Model - Dividends ^[3]	22.60%	15%
3 Stage Dividend Discount Model - Earnings ^[3]	21.95%	<u>15%</u>
Weighted Average	<u>13.66%</u>	100%
Selected Cost of Equity	<u>13.66%</u>	

Debt Cost of Capital

		Weighting
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	3.04%	0%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	3.37%	75%
Ba - Avg of MTDOR Study, Bloomberg and Capital IQ ^[5]	5.31%	25%
B - Avg of MTDOR Study, Bloomberg and Capital IQ ^[5]	7.81%	<u>0%</u>
Weighted Average	<u>3.86%</u>	100%
Selected Cost of Debt	<u>3.86%</u>	

Weighted Average Cost of Capital (WACC)

Source of Capital	Capital Structure	Capital Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	55.00%	13.66%		13.66%	7.51%
Debt	45.00%	3.86%	24.00%	2.93%	1.32%
WACC	100.00%				8.83%
WACC (Rounded)					8.85%

Notes

[1] From worksheet: Capital Structure

[2] From worksheet: Capital Asset Pricing Model Summary

[3] From worksheet: Yield Equity Summary

[4] January 2022, Mergent Bond Record

[5] Average corporate bond yields from: Montana Department of Revenue High Yield Debt Study and Kroll Capitalization Rate Study.

MONTANA DEPARTMENT OF REVENUE

Direct Capitalization Rate Conclusion

Industry: Pipelines - Liquid

2022 Assessment Year

Capital Structure ^[1]

Equity	55.00%
Debt	45.00%

Equity Capitalization Rate ^[2]

NOI After-tax	9.10%
GCF	15.40%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.00%
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NOI After-tax Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	55.00%	9.10%		9.10%	5.01%
Debt	45.00%	4.00%	24.00%	3.04%	1.37%
Total	100.00%				6.37%
Total (Rounded)					6.40%

GCF Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	55.00%	15.40%		15.40%	8.47%
Debt	45.00%	4.00%	24.00%	3.04%	1.37%
WACC	100.00%				9.84%
Total (Rounded)					9.85%

Notes:

[1] From worksheet: Capital Structure

[2] From worksheet: Direct Equity Summary

[3] From worksheet: Calculated Current Yield

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies

Industry: Pipelines - Liquid

2022 Assessment Year

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Pipeline MLPs industry.

Companies were then selected using the following screening criteria:

1. Primarily engaged in the transportation, storage, and terminaling of crude oil, refined products, and liquified petroleum gas.
2. Actively traded on an American exchange.
3. Incorporated as a limited partnership.
4. Operate in the North / central regions of the West and Midwest
5. No significant merger & acquisition activity during the year.

Company Ticker	Transportation etc. of petroleum liquids	Actively traded on an American Exchange	Incorporated as LP	Operates in North / West Region	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
BKEP	No							
BPMP						No		
CAPL	No							
CEQP	No							
CQP	No							
DCP	No							
DKL	Yes	Yes	Yes	No				
ENBL	No							
EPD	No							
ET	No							
GEL	Yes	Yes	Yes	No				
GLP	No							
GPP	No							
HEP	Yes	Yes	Yes	Yes	Yes	Yes	No	[1]
HESM	No							
MMLP	No							

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies

Industry: Pipelines - Liquid

2022 Assessment Year

Screening Requirements:

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Companies were then selected using the following screening criteria:

1. Primarily engaged in the transportation, storage, and terminaling of crude oil, refined products, and liquified petroleum gas.
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4. Operate in the North / central regions of the West and Midwest
5. No significant merger & acquisition activity during the year.

Company Ticker	Transportation etc. of petroleum liquids	Actively traded on an American Exchange	Incorporated as LP	Operates in North / West Region	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
MMP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
MPLX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
NGL	No							
NS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
OMP	Yes	Yes	Yes	Yes	Yes	No	No	[2]
PAA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
PAGP	No							
PBFX	PBFX	Yes	Yes	Yes	No			
PSXP	Yes	Yes	Yes	Yes	Yes	No	No	[3]
RTLX	RTLX	Yes	Yes	Yes	No			
SHLX	Yes	Yes	Yes	No				
SMLP	No							
SPH	No							
SRLP	No							
WES	No							

[1] HEP working to acquire Sinclair Oil

[2] OMP entered into a definitive merger agreement with CEQP in October 2021

[3] PSXP has agreed to be acquired by it's general partner

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure
Industry: Pipelines - Liquid
2022 Assessment Year

(\$ and Shares Outstanding In Millions, Except Per Share Amounts)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker Symbol	Company	Industry Group	Financial Strength	Shares Outstanding	End of Year Closing Stock Price	MV Common Stock	MV Preferred Stock	MV Long Term Debt	PV of Operating Leases	Total Common, Preferred, LT Debt, & Op Leases	% Common	% Preferred	% Debt & Op Leases
		<i>Value Line</i>	<i>Value Line</i>	<i>10-K</i>	<i>Yahoo</i>	<i>ExF</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>G+H+I+J</i>	<i>G/K</i>	<i>H/K</i>	<i>(I+J)/K</i>
							<i>Note [1]</i>	<i>Note [2]</i>					
MMP	Magellan Midstream	PIPEMLP	B+	212.39	46.44	9,863	0	5,712	173	15,748	63%	0%	37%
MPLX	MPLX LP	PIPEMLP	B+	1,014.63	29.59	30,023	611	20,686	264	51,584	58%	1%	41%
NS	NuStar Energy L.P.	PIPEMLP	B	109.99	15.88	1,747	756	3,516	75	6,094	29%	12%	59%
PAA	Plains All Amer. Pipe.	PIPEMLP	B	704.99	9.34	6,585	2,292	9,987	416	19,280	34%	12%	54%
All Companies						48,218	3,659	39,900	929	92,706	52%	4%	44%
Average											46%	6%	48%
Median											46%	7%	47%
Trimmed Average											46%	7%	47%
High											63%	12%	59%
Low											29%	0%	37%
Selected											55%		45%

Notes

[1] Market value of preferred stock assumed to equal book value

[2] Market value of debt is fair value of long term debt from 10-K notes

MCA 15-1-210, rationale for changes to guideline companies:

2022 - Removed HEP, OMP, & PSXP for merger and acquisition related activities

		<u>Median</u>	
Current Year	46%	7%	47%
Prior Year	49%	0%	51%
2 Years Prior	56%	0%	40%
3 Year Average	50%	2%	46%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Pipelines - Liquid

2022 Assessment Year

$$k_e = R_f + \beta \times ERP$$

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	10.89%	9.03%
$R_f =$	Risk Free Rate	1.94%	1.94%
$\beta =$	Beta	1.20	1.20
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.46%	5.91%
$R_m =$	Market Rate of Return	9.40%	7.85%

Risk Free Rate Measures (R_f):

The Value Line Investment Survey: Selection & Opinion^[1]

January 7, 2022 Page 2089

Selected Yields on Taxable U.S. Treasury Securities as of 12/27/21

10-year	1.48%
30-year	1.88%

Federal Reserve Statistical Release^[2]

U.S. government securities, Treasury constant maturities, Nominal, December 31, 2021

10-year	1.52%
20-year	1.94%
30-year	1.90%

Risk Free Rate Selected 1.94%

Notes

[1] "Value Line Selection & Opinion", Value Line (January 7, 2022)

[2] <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15>

Ex Post - Equity Risk Premium Measures ($ERP = R_m - R_f$)

Duff & Phelps, 2022 Cost of Capital Navigator

		<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Historical" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	9.40%	1.94%	7.46%
ERP "Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	8.16%	1.94%	6.22%
Ex Post Equity Risk Premium Selected		<u><u>9.40%</u></u>	<u><u>1.94%</u></u>	<u><u>7.46%</u></u>

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Pipelines - Liquid

2022 Assessment Year

$$k_e = R_f + \beta \times ERP$$

Ex Ante - Equity Risk Premium Measures (ERP = Rm - Rf)

DOR 3 Stage Dividend Growth Model, S & P 500, See Exhibit

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP - <i>Ex Ante</i>	8.05%	1.94%	6.11%

Duff & Phelps, 2022 Cost of Capital Navigator

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Conditional" - <i>Ex Ante</i>	8.00%	2.50%	5.50%

Damodaran Implied ERP (Jan 5, 2022)

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium (FCFE) - <i>Ex Ante</i>	5.76%	1.52%	4.24%
Implied Premium (FCFE with sustainable payout) - <i>Ex Ante</i>	6.42%	1.52%	4.90%

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>	7.06%		5.19%
<u>Median</u>	7.21%		5.20%
<u>High</u>	8.05%		6.11%
<u>Low</u>	5.76%		4.24%

Equity Risk Premium Selected	<u>7.85%</u>	<u>1.94%</u>	<u>5.91%</u>
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MONTANA DEPARTMENT OF REVENUE

Support for Beta Selection in CAPM**Industry: Pipelines - Liquid****2022 Assessment Year**

A	B	C	D	E
Ticker Symbol	Company	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
MMP	Magellan Midstream	PIPEMLP	B+	1.20
MPLX	MPLX LP	PIPEMLP	B+	1.05
NS	NuStar Energy L.P.	PIPEMLP	B	1.25
PAA	Plains All Amer. Pipe.	PIPEMLP	B	1.50
Average				1.25
Median				1.23
Trimmed Average				1.23
High				1.50
Low				1.05
Selected				1.20

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth
Industry: Pipelines - Liquid
2022 Assessment Year

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.44%	2.21%	4.65%		
Survey of Professional Forecasters ^[2]	2.49%	2.25%	4.74%		
Congressional Budget Office ^[3]					
Average	2.47%	2.23%	4.70%		
Median	2.47%	2.23%	4.70%		
High	2.49%	2.25%	4.74%		
Low	2.44%	2.21%	4.65%		
Selected	2.45%	2.25%	4.70%	4.65%	4.74%

Inflationary Trend Factors						
Year	Dec. CPI-U Index	Percent Change From Previous	Dec. to Dec. Conversion Factor	Annual Avg. CPI-U Index	Percent Change From Previous	Annual Conversion Factor
	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>
2011	225.672	2.9%	1.2354	224.939	3.1%	1.2046
2012	229.601	1.7%	1.2143	229.594	2.0%	1.1802
2013	233.049	1.5%	1.1963	232.957	1.4%	1.1632
2014	234.812	0.8%	1.1873	236.736	1.6%	1.1446
2015	236.525	0.7%	1.1787	237.017	0.1%	1.1433
2016	241.432	2.0%	1.1548	240.007	1.2%	1.1290
2017	246.524	2.1%	1.1309	245.120	2.1%	1.1055
2018	251.233	1.9%	1.1097	251.107	2.4%	1.0791
2019	256.974	2.2%	1.0849	255.657	1.8%	1.0599
2020	260.474	1.3%	1.0704	258.811	1.2%	1.0470
2021	278.802	6.6%	1.0000	270.970	4.5%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 17, 2021 Table 3 Inflation Rate and Real GDP mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

[2] Federal Reserve Bank of Philadelphia Survey of Professional Forecasters February 11, 2022 Table 8 and Table 9 Average over next 10-Year mean

<https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters>

[3] Not available at study date

<https://www.cbo.gov/about/products/budget-economic-data#4>

[5] Historical Consumer Price Index for All Urban Consumers (CPI-U): U.S. city average, all items, index averages (1982-84=100, unless otherwise noted)

<https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-202001.pdf>

[6] (Row year - Previous Year) / Row Year

[7] Most current year / Row year

MONTANA DEPARTMENT OF REVENUE

3 Stage Dividend Discount Model (DDM)

Industry: Pipelines - Liquid

2022 Assessment Year

$$k_e = (D_1 / P_0) + g$$

k_e = Cost of Equity

D_1 = Expected Dividend

P_0 = Current Price Per Share

g = Sustainable Long-Term Growth

A	B	C	D	E	F	G	H	I
Ticker	Company	2021 Year End Stock Price	2022 Est Div'ds Decl'd per sh	Expected Equity Payout Yield	Sustainable Long-Term Growth Rate ^[1]	Sustainable Long-Term Growth Rate ^[1]	Cost of Equity Dividend Growth	Cost of Equity Earnings Growth
		<i>Yahoo</i>	<i>Value Line</i>	<i>D/C</i>	<i>Dividends</i>	<i>Earnings</i>	<i>E+F</i>	<i>E+G</i>
		P_0	D_1	D_1/P_0	g	g	k_e	k_e
MMP	Magellan Midstream	46.44	4.18	9.00%	10.66%	9.80%	19.66%	18.80%
MPLX	MPLX LP	29.59	2.82	9.53%	1.25%	6.49%	10.78%	16.02%
NS	NuStar Energy L.P.	15.88	1.60	10.08%	14.15%	16.32%	24.23%	26.40%
PAA	Plains All Amer. Pipe.	9.34	0.72	7.71%	43.54%	23.28%	51.25%	30.99%
Average							26.48%	23.05%
Median							21.94%	22.60%
Trimmed Average							21.94%	22.60%
High							51.25%	30.99%
Low							10.78%	16.02%
Selected							21.95%	22.60%

Notes:

[1] From worksheet: DDM Sustainable Long-Term Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Short Term Growth Rate Calculations

Industry: Pipelines - Liquid

2022 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2022 Est	Expected Dividend Yield	Div'ds Decl'd per sh 2024-2026 Est	Short-Term Growth Rate
		<i>Yahoo</i>	<i>Value Line</i>	<i>D / C</i>	<i>Value Line</i>	<i>Note [1]</i>
MMP	Magellan Midstream	46.44	4.18	9.00%	5.90	12.17%
MPLX	MPLX LP	29.59	2.82	9.53%	2.82	0.00%
NS	NuStar Energy L.P.	15.88	1.60	10.08%	2.50	16.04%
PAA	Plains All Amer. Pipe.	9.34	0.72	7.71%	2.50	51.43%

A	B	C	D	E
Ticker	Company	Earnings per share 2022 Est	Earnings per share 2024-2026 Est	Short-Term Growth Rate
		<i>Value Line</i>	<i>Value Line</i>	<i>Note [1]</i>
MMP	Magellan Midstream	4.30	5.90	11.12%
MPLX	MPLX LP	2.90	3.55	6.97%
NS	NuStar Energy L.P.	1.20	2.00	18.56%
PAA	Plains All Amer. Pipe.	1.20	2.50	27.72%

Notes

[1] 4 year compound annual growth rate (CAGR) - 3 periods

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Pipelines - Liquid

2022 Assessment Year

Dividend Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Dividend Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. \text{ Yield}$						
MMP	Magellan Midstream	46.44	12.17%	4.70%	9.00%	19.66%	10.66%	(46.44)	4.18	4.69	5.26	5.90	6.62
MPLX	MPLX LP	29.59	0.00%	4.70%	9.53%	10.78%	1.25%	(29.59)	2.82	2.82	2.82	2.82	2.82
NS	NuStar Energy L.P.	15.88	16.04%	4.70%	10.08%	24.23%	14.15%	(15.88)	1.60	1.86	2.15	2.50	2.90
PAA	Plains All Amer. Pipe.	9.34	51.43%	4.70%	7.71%	51.25%	43.54%	(9.34)	0.72	1.09	1.65	2.50	3.79

Earnings Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Earnings Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. \text{ Yield}$						
MMP	Magellan Midstream	46.44	11.12%	4.70%	9.00%	18.80%	9.80%	(46.44)	4.18	4.64	5.16	5.74	6.37
MPLX	MPLX LP	29.59	6.97%	4.70%	9.53%	16.02%	6.49%	(29.59)	2.82	3.02	3.23	3.45	3.69
NS	NuStar Energy L.P.	15.88	18.56%	4.70%	10.08%	26.40%	16.32%	(15.88)	1.60	1.90	2.25	2.67	3.16
PAA	Plains All Amer. Pipe.	9.34	27.72%	4.70%	7.71%	30.99%	23.28%	(9.34)	0.72	0.92	1.17	1.50	1.92

Notes:

[1] From worksheet: DDM Short Term Growth Rate Calculations

[2] From worksheet: Inflation & Real Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Pipelines - Liquid

2022 Assessment Year

Dividend	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
MMP	7.39	8.25	9.22	10.29	11.50	12.84	14.34	16.01	17.88	19.97	22.30	24.90	27.81	31.06	34.68	36.31	38.02	130,175,468,945
MPLX	2.83	2.84	2.85	2.86	2.86	2.87	2.88	2.89	2.90	2.91	2.92	2.93	2.94	2.95	2.96	3.09	3.24	11,092,673,824
NS	3.34	3.86	4.44	5.12	5.91	6.81	7.85	9.05	10.43	12.03	13.87	15.99	18.43	21.25	24.49	25.65	26.85	91,933,695,519
PAA	5.61	8.33	12.35	18.32	27.17	40.29	59.75	88.62	131.44	194.94	289.11	428.79	635.94	943.18	1,398.84	1,464.59	1,533.43	5,250,209,020,199

Earnings	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
MMP	7.05	7.81	8.64	9.57	10.59	11.72	12.98	14.36	15.90	17.60	19.48	21.57	23.87	26.42	29.25	30.63	32.06	109,783,533,720
MPLX	3.94	4.21	4.50	4.81	5.14	5.49	5.86	6.26	6.69	7.14	7.63	8.15	8.71	9.30	9.94	10.40	10.89	37,297,359,624
NS	3.72	4.38	5.15	6.06	7.12	8.38	9.86	11.60	13.64	16.05	18.88	22.21	26.13	30.73	36.16	37.86	39.63	135,703,172,406
PAA	2.42	3.05	3.85	4.86	6.13	7.73	9.76	12.31	15.54	19.61	24.74	31.22	39.39	49.70	62.72	65.67	68.75	235,396,341,917

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Pipelines - Liquid

2022 Assessment Year

A	B	C	D	E	F
Ticker Symbol	Company	Industry Group	Financial Strength	Moody's Long Term Rating	Yield to Maturity
		<i>Value Line</i>	<i>Value Line</i>	<i>Moodys.com</i>	
MMP	Magellan Midstream	PIPEMLP	B+	Baa1	3.37%
MPLX	MPLX LP	PIPEMLP	B+	Baa2	3.37%
NS	NuStar Energy L.P.	PIPEMLP	B	Ba3	5.31%
PAA	Plains All Amer. Pipe.	PIPEMLP	B	Baa3	3.37%
Average					3.86%
Median					3.37%
Trimmed Average					3.37%
High					5.31%
Low					3.37%
Selected					3.86%

MONTANA DEPARTMENT OF REVENUE
Support for Direct Capitalization - Equity Capitalization Rates
Industry: Pipelines - Liquid
2022 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Ticker	Company	End of Year Closing Stock Price	VL Historic EPS	VL Est EPS	VL Historic P/E Ratio	VL Est P/E Ratio	Ke Estimate - Earnings (Hist. P/E)	Ke Estimate - Earnings (Est. P/E)	VL Historic Cash Flow Per Share	VL Est Cash Flow Per Share	VL Historic P/CF Ratio	VL Est P/CF Ratio	Ke Estimate Cash Flow (Hist. P/CF)	Ke Estimate Cash Flow (Est. P/CF)	Market Value of Equity	Book Value of Equity	MTBR
		Yahoo	Value Line	Value Line	C/D	C/E	1/F	1/G	Value Line	Value Line	C/J	C/K	1/L	1/M	Price x Shrs	Value Line	P/Q
MMP	Magellan Midstream	46.44	4.29	4.30	10.83	10.80	9.24%	9.26%	4.82	4.80	9.63	9.67	10.38%	10.34%	9,863	2,304	4.28
MPLX	MPLX LP	29.59	2.86	2.90	10.35	10.20	9.67%	9.80%	3.38	4.00	8.75	7.40	11.42%	13.52%	30,023	13,017	2.31
NS	NuStar Energy L.P.	15.88	(0.99)	1.20		13.23		7.56%	1.70	5.00	9.34	3.18	10.71%	31.49%	1,747	1,832	0.95
PAA	Plains All Amer. Pipe.	9.34	0.55	1.30	16.98	7.18	5.89%	13.92%	0.53	1.95	17.62	4.79	5.67%	20.88%	6,585	9,593	0.69
Average					12.72	10.36	8.26%	10.13%			11.34	6.26	9.55%	19.05%			2.06
Median					10.83	10.50	9.24%	9.53%			9.49	6.09	10.54%	17.20%			1.63
Trimmed Average					10.83	10.50	9.24%	9.53%			9.49	6.09	10.54%	17.20%			1.63
High					16.98	13.23	9.67%	13.92%			17.62	9.67	11.42%	31.49%			4.28
Low					10.35	7.18	5.89%	7.56%			8.75	3.18	5.67%	10.34%			0.69
Selected							9.10%						15.40%				1.63

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Debt Capitalization Rate

Industry: Pipelines - Liquid

2022 Assessment Year

(\$ in Millions)

A	B	C	D	E	F	G	H	I	J
Ticker	Company	Current Year Interest Exp.	Previous Year MV LT Debt	Previous Year BV LT Debt	Current Year MV LT Debt	Current Year BV LT Debt	Average MV LT Debt	Current Yield	MTBR
		<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	$(D+F)/2$	(C/H)	(F/G)
MMP	Magellan Midstream	228	5,881	4,979	5,712	5,089	5,796	3.94%	1.12
MPLX	MPLX LP	785	22,846	20,139	20,686	18,571	21,766	3.61%	1.11
NS	NuStar Energy L.P.	214	3,857	3,597	3,516	3,187	3,687	5.80%	1.10
PAA	Plains All Amer. Pipe.	425	10,980	10,213	9,987	9,220	10,484	4.05%	1.08
	All Companies	1,652			39,900	36,067	41,732	3.96%	1.11
	Average							4.35%	1.11
	Median							3.99%	1.11
	Trimmed Average							3.99%	1.11
	High							5.80%	1.12
	Low							3.61%	1.08
	Selected							4.00%	1.11

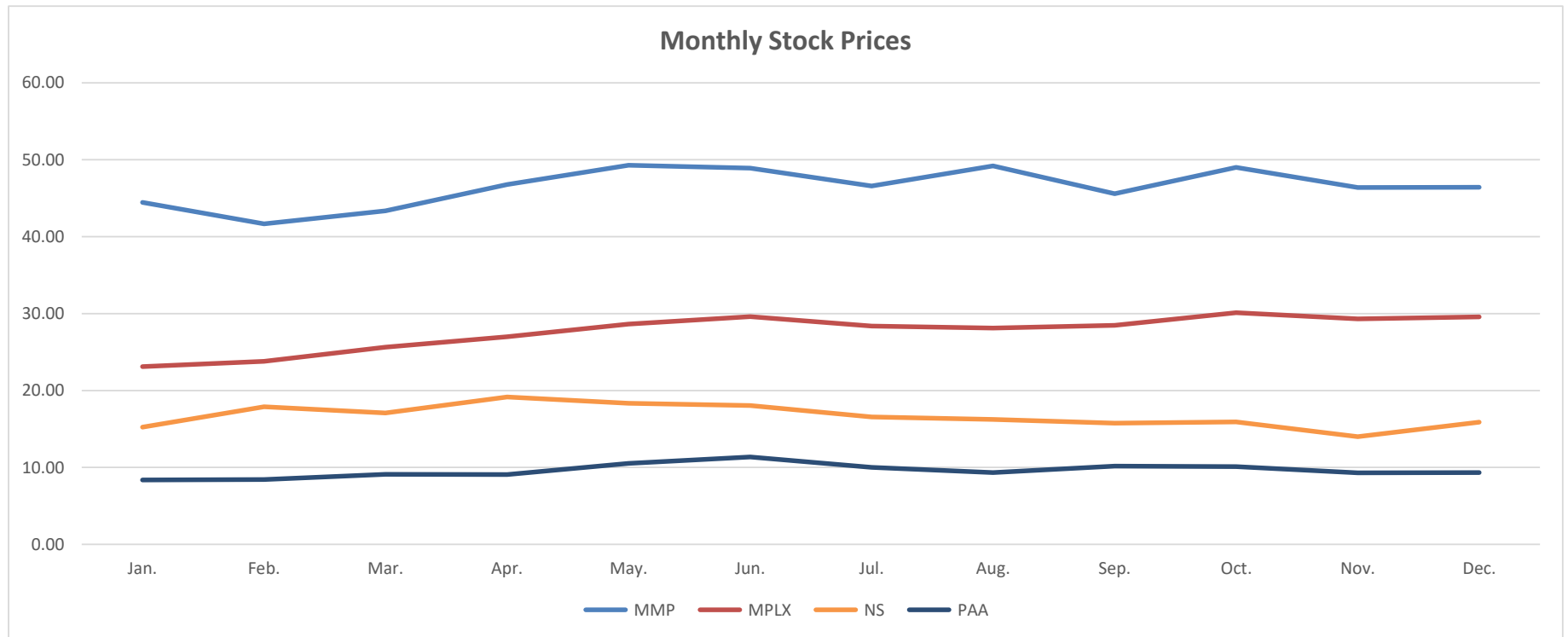
MONTANA DEPARTMENT OF REVENUE

Support of Stock Price - From YAHOO Finance

Industry: Pipelines - Liquid

2022 Assessment Year

		End of Period Closing Stock Price											
1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
MMP	Magellan Midstream	44.46	41.67	43.36	46.77	49.29	48.91	46.60	49.21	45.58	49.00	46.38	46.44
MPLX	MPLX LP	23.11	23.81	25.63	26.99	28.63	29.61	28.38	28.12	28.47	30.12	29.31	29.59
NS	NuStar Energy L.P.	15.25	17.90	17.09	19.16	18.35	18.05	16.56	16.25	15.74	15.91	14.00	15.88
PAA	Plains All Amer. Pipe.	8.37	8.44	9.10	9.08	10.53	11.36	10.01	9.33	10.17	10.12	9.30	9.34



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies

Industry: Pipelines - Liquid

2022 Assessment Year

(\$ In Millions)

1	2	3	4	5	6	7	8	9	10	11	
A	B	C	D	E	F	G	H	I	J	K	L
Ticker	Company	Inflation	PP&E, Gross Current Year	PP&E, Gross Previous Year	Average PP&E (D+E)/2	Depreciation Expense 10-K	Average Life of Assets F/G	Note [1] C*H	Note [1] 1/(1+C)^H	Replacement Cost (RC) Note [1] G*I/(1-J)	RC as % of Depreciation K/G
		MTDOR (CPI)	10-K, Notes	10-K, Notes							
MMP	Magellan Midstream	2.45%	8,046	7,944	7,995	228	35	0.86	0.43	342	150.20%
MPLX	MPLX LP	2.45%	26,546	26,875	26,711	1,287	21	0.51	0.61	1,657	128.76%
NS	NuStar Energy L.P.	2.45%	5,729	6,165	5,947	267	22	0.55	0.58	349	130.99%
PAA	Plains All Amer. Pipe.	2.45%	19,257	18,585	18,921	774	24	0.60	0.55	1,038	134.10%
Average											136.02%
Median											132.55%
Trimmed Average											132.55%
High											150.20%
Low											128.76%
Selected											132.55%

Notes

[1] Cornell, B. & Gerger, R. (2017). Estimating Terminal Values with Inflation: The Inputs Matter-It Is Not a Formulaic Exercise. *Business Valuation Review*, Volume 36, Number 4, 117-123.