



**Johnston Investment Counsel**  
LIFE THE WAY YOU PLANNED IT.

## Retirement Forecasting Analysis

*Prepared For:*

**John & Jane Doe**

**August, 2011**

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## Executive Summary

## Executive Summary

### Observations

- This analysis consists of six sections: an executive summary, financial statement review, retirement forecasting analysis, investment portfolio analysis, insurance review, and an estate planning review. We also provide detailed retirement data in two appendices as well as a review of capital market history.
- The Does' balance sheet is in reasonably good order with the only liabilities being the home and automobile loans. Currently, the home loan interest rate (according to the questionnaire) is 3.875%. Rates have fallen another 0.5% to approximately 3.375%. The Does' should investigate whether refinancing would make sense (cost vs. payback period).
- The Does' have a limited reserve fund (approximately 1 month of expenses). Most financial experts recommend a reserve fund of between 3 to 6 months which would imply a reserve fund balance between \$27,000 and \$54,000. JIC's recommendation is to be closer to the \$27,000 reserve fund balance.
- JIC created five different withdrawal scenarios for the retirement forecasting analysis. Within the retirement forecasting section, each scenario is described in detail. Ideally, we would like the portfolio to last until Jane is 100. There are substantially more benefits (in terms of income), if retirement is delayed for a few years. However, that may not be an option. If John retires at 62 and Jane at 60, JIC believes the portfolio could support inflation adjusted retirement income of \$100,000 or \$125,000 for ten years and \$100,000 thereafter (under expected and pessimistic return conditions). The portfolio would be depleted before Jane is 100 for other withdrawal scenarios (assuming early retirement).
- If retirement is delayed until John is 65 and Jane is 62 (to reach higher pension benefit levels), the portfolio should be able to support inflation-adjusted income of \$100,000, \$125,000 or \$150,000 for 10 years and \$125,000 thereafter under expected and pessimistic return conditions (although the portfolio is depleted under pessimistic return conditions when Jane is in her 90's for the \$125,000 and \$150,000/\$125,000 scenarios).
- From an investment standpoint, the key issue is inflation protection. Since the Caterpillar pension and Social Security can be thought of as a bond portfolio, we believe the existing investment portfolio could take slightly higher risk levels. Currently the stock allocation is 54% and JIC believes a stock allocation of between 60% to 65% is appropriate. JIC suggests diversifying to other inflation-hedging asset classes such as real estate, commodities, and inflation-protected bonds.



## Financial Statement Review

## Summary Financial Statements

Income Statement			Balance Sheet			
	No STIP	Assuming STIP	Personal Assets		Existing Liabilities	
Revenue Net of 401(k)	\$176,964	\$223,336	Cash/Money Market	\$8,861	1 <sup>st</sup> Mortgage	\$216,421
			Home	275,000	Automobile Loan	12,616
Fixed Expenses	95,558	95,558	Automobiles	45,000	<b>Total Liabilities</b>	<b>\$229,037</b>
Somewhat Discretionary	18,272	18,272	<b>Investment Assets</b>			
Discretionary	13,432	13,432	John 401k	\$250,383	<b>Net Worth</b>	<b>\$596,431</b>
<b>Total Expenses</b>	<b>\$127,262</b>	<b>\$127,262</b>	Jane 401k	238,566		
			Other	7,658		
<b>Net Income</b>	<b>\$49,702</b>	<b>\$96,074</b>	<b>Total Assets</b>	<b>\$825,468</b>		

### Observations

- The following page provides a more detailed breakdown of the various expenses. With the exception of taxes, these are the numbers supplied in JIC's financial planning questionnaire and are, of course, subject to error (taxes came from the Does' 2010 tax return—not the questionnaire). It appears that either expenses are missing or there are significantly more funds available for investment. One source of error, we believe, is in the mortgage amount. Our rough calculations, assuming a maturity of September, 2020, suggest an annual payment of just under \$29,000 where \$21,432 is listed on JIC's questionnaire. Regardless, as the retirement planning analysis will show, any additional funds available for investment would be beneficial.
- The Does' balance sheet is in reasonably good order with the only liabilities being the home and automobile loans. The home loan is due in September, 2020 and the car loans are due toward the end of 2015. Currently, the home loan interest rate (according to the questionnaire) is 3.875%. Rates have fallen another roughly 0.5% to approximately 3.375%. **The Does' should investigate whether refinancing would make sense (cost vs. payback period).**
- One area that could be increased is a reserve fund. Normally, financial experts suggest 3 to 6 months of expenses in a reserve fund. The Does' currently have approximately 1 month of expenses (fixed plus somewhat discretionary but excluding discretionary) in a reserve fund. A 3 to 6 month reserve would suggest a balance between \$27,000 and \$54,000. JIC's recommendation is to be closer to the \$27,000 reserve fund balance.



## Expense Detail

### Fixed Expenses

Mortgage	\$21,432
Utilities	2,655
Insurance	6,948
Taxes (1)	51,475
Food	6,760
Dependent Care	0
Other	0

**Total Fixed Expenses** **\$89,270**

### Somewhat Discretionary Expenses

Clothing	2,100
Education	0
Food "Eating Out"	3,900
Non-Insurance Healthcare	5,265
Maintenance (car and home)	3,500
Transportation	3,507
Other	0

**Total Somewhat Discretionary Expenses** **\$18,272**

### Discretionary Expenses

Charitable Contributions	\$3,700
Recreation/Entertainment	1,016
Travel	0
Vacation	8,716
Other	0

**Total Discretionary Expenses** **\$13,432**

1) Taxes include: federal tax of \$24,797, state tax of \$4,886, Social Security of \$12,737, Medicare of \$3,027, and real estate of \$6,028. With the exception of real estate, taxes are from the 2010 tax return.



## Retirement Forecasting Analysis



## Retirement Forecasting Analysis

### **Background**

- John & Jane Doe are interested in whether their current assets are sufficient to meet their retirement income goal. In conducting this analysis, JIC created a financial model that, using a process known as monte-carlo simulation, provides a range of probabilistic outcomes. This model forecasts the effect different retirement ages, return environments, asset allocations, and withdrawal scenarios will have on the portfolio's ability to meet the Does' retirement income goal.
- This section provides the assumptions, methodologies, observations, conclusions, and recommendations for the retirement forecasting analysis. Subsequent pages provide details on cash flows and results.
- The tables on pages 17-19 summarize when assets are expected to be depleted or the portfolio value (when Jane is 100) for different asset mixes and retirement ages. If a number is in parenthesis that indicates Jane's age when the portfolio is depleted. If a dollar value is listed, that is the expected value of portfolio assets when Jane turns 100. The difference between pages 17-19 is that each table uses a different future return assumption (expected, pessimistic, and catastrophic, respectively).

### **Assumptions**

- JIC started its analysis assuming \$496,000 in starting assets (this reflects at least some of the August market correction). This value includes the Does' two Caterpillar 401k's, their taxable account, and Jane's IRA.
- JIC's analysis assumes social security income of either \$19,524 or \$27,564 for John (depending on whether he retires at 62 or 65). JIC's analysis assumes Jane's social security income will be \$19,224 (her age 62 value).
  - I. While social security benefits are supposed to increase based on the consumer price index, JIC has assumed future growth of only 1% (given the current financial condition of social security).
- To maintain purchasing power, JIC assumed withdrawals would increase by a 3% inflation rate. JIC's future capital market return assumptions are 7% for stocks and 4% for bonds. JIC assumed both future stock and bond returns will be significantly below their long-term historical average. Should future returns be above JIC's estimates, then the results shown will be conservative.
- JIC evaluated two different retirement ages. The first is John works through his 62<sup>nd</sup> year and Jane works through her 60<sup>th</sup> year. For this first scenario, their respective retirement dates would be December 31, 2013 and December 31, 2014. JIC also evaluated a scenario where John would work through his 65<sup>th</sup> year and Jane through her 62<sup>nd</sup> year. This was done to capture the higher pension and/or Social Security payments. Under this scenario, John and Jane would retire on December 31, 2016.



## Retirement Forecasting Analysis

### Assumptions (continued)

- Generally speaking, clients seek 80% to 90% of their pre-retirement income during retirement. This will not be achievable in the Does' situation. While the Does' will have substantial retirement income, their most significant risk is to maintain the purchasing power of their income since their pensions do not have an inflation adjustment. JIC evaluated five different withdrawal scenarios:
  1. Scenario 1 seeks inflation-adjusted income of \$100,000,
  2. Scenario 2 seeks inflation-adjusted income of \$125,000,
  3. Scenario 3 seeks inflation-adjusted income of \$150,000.
  4. Scenario 4 seeks inflation-adjusted income of \$175,000, and
  5. Scenario 5 changes depending on the Does' retirement ages. For the age 62/60 retirement, Scenario 5 assumes \$125,000 inflation-adjusted income for 10 years and \$100,000 thereafter. For the age 65/62 retirement, Scenario 5 assumes \$150,000 inflation-adjusted income for 10 years and \$125,000 thereafter.
- JIC would like to have the portfolio support withdrawals until Jane is 100.
- With respect to the Caterpillar pension, we have assumed 100% survivor pension benefits. The surviving spouse will continue to receive the pension of the deceased spouse in full. From an income standpoint, the surviving spouse will lose the deceased spouse's Social Security benefit.
- JIC evaluated the effect different asset allocations would have on achieving the retirement income goal. JIC assumed the following portfolio allocations:
  1. 25% stock / 75% bonds,
  2. 50% stock / 50% bonds,
  3. 60% stock / 40% bond, and
  4. 75% stock / 25% bond.
- For each withdrawal scenario, JIC evaluated the effect different investment returns would have on the portfolio's ability to achieve the withdrawal goal. Specifically, JIC examined three different return scenarios: expected, pessimistic, and catastrophic. Expected results are based on a 7% stock return and 4% bond return adjusted for each portfolio's allocation to stocks and bonds. Pessimistic returns are below expected returns. There is a 75% probability that future returns will be higher than the pessimistic scenario (and 25% chance returns will be lower). Catastrophic returns are significantly below expected returns but are not worst-case. There is a 95% probability future returns will be higher (and 5% chance lower) than the catastrophic scenario.
- JIC's forecast goes through 2054 (when Jane turns 100). While living to 100 is still relatively rare, people living into their 90's is one of the fastest growing demographic segments. Given the rapid improvements in medical technology, we believe it is prudent to, at a minimum, understand the implications of living longer than expected.



## Retirement Forecasting Analysis

### John/Jane Retirement 62 and 60

- Expected future returns range between 4.8% and 6.3%. Under expected return conditions, the portfolio using Scenario 1 (\$100,000 ) and Scenario 5 (\$125,000 for 10 years, \$100,000 thereafter) should last until Jane is 100. The portfolio value at that time is generally between \$1 to \$3 million. Using Scenario 2 (\$125,000) the portfolio is depleted sometime between Jane's age 89 and 96, depending on asset mix. Scenarios 3 (\$150,000) and 4 (\$175,000) are not viable alternatives.
- Pessimistic returns range between 4.0% and 4.7%. Under **pessimistic return conditions**, only Scenario 1 (\$100,000), for asset mixes of 50% stock or above will have assets remaining when Jane is 100 (the 25% stock/75% bond scenario is depleted when Jane turns 100). The portfolio using Scenario 5 (\$125,000 for 10 years, \$100,000 thereafter) is depleted when Jane is in here late 90's. With Scenario 2 (\$125,000), the portfolio is depleted when Jane is in her mid 80's. Scenario 3 and 4 are not viable alternatives.

### John/Jane Retirement 65 and 62

- Deferring retirement by 2-3 years has a significant impact. For this retirement age, Scenario 5 assumes \$150,000 in retirement income for 10 years and \$125,000 thereafter. Under expected return conditions, the portfolio using Scenario 1 (\$100,000), Scenario 2 (\$125,000), and Scenario 5 is expected to last until Jane is 100 (except for the 25% stock / 75% bond portfolio allocation for Scenario 5 and that is depleted when Jane is 96). The portfolio using Scenario 3 lasts until Jane's late 80's/mid 90's depending on portfolio mix. Scenario 4 (\$175,000) is not a viable alternative.
- Under **pessimistic return conditions**, the portfolio under Scenario 1 (\$100,000), should have assets remaining when Jane is 100. However, the portfolio using Scenario 2 (\$125,000) and Scenario 5 (\$150,000 for 10 years, \$125,000 thereafter) is expected to last until Jane's late / (early-mid) 90's, respectively. Scenarios 3 and 4 are not viable alternatives.
- A summary of each analysis, as well as the catastrophic return scenarios are shown on pages 16-18.



## Retirement Forecasting Analysis

### **JIC Conclusions And Recommendations**

- The key issues are retirement age and income. There are substantially more benefits (in terms of income), if retirement is delayed for a few years. However, that may not be an option.
- If the 62/60 retirement age combination is selected, JIC believes either withdrawal scenario 1 or 5 would be appropriate (under both the expected and pessimistic return conditions).
- For the 65/62 retirement age, either scenario 1, 2, or 5 are appropriate under expected return conditions. Scenario 1 and 2 are acceptable under pessimistic conditions, while scenario 5 is questionable.



**John Retires 62 / Jane Retires 60**  
**Expected 10-Year Cash Flow**

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<b><u>John/Jane Age (as of Dec 31)</u></b>	63/60	64/61	65/62	66/63	67/64	68/65	69/66	70/67	71/68	72/69
<b><u>Income Sources</u></b>										
John Pension	58,176	58,176	58,176	58,176	58,176	58,176	58,176	58,176	58,176	58,176
John Social	19,524	19,719	19,916	20,116	20,317	20,520	20,725	20,932	21,142,	21,353
Jane Salary	106,606	0	0	0	0	0	0	0	0	0
Jane Pension	0	48,000	48,000	48,000	48,000	48,000	48,000	48,000	48,000	48,000
Jane Social	<u>0</u>	<u>0</u>	<u>0</u>	<u>19,224</u>	<u>19,416</u>	<u>19,610</u>	<u>19,807</u>	<u>20,005</u>	<u>20,205</u>	20,407
<b>Total Income</b>	<b>184,306</b>	<b>125,895</b>	<b>126,092</b>	<b>145,516</b>	<b>145,909</b>	<b>146,306</b>	<b>146,708</b>	<b>147,113</b>	<b>126,381</b>	<b>147,936</b>

**Withdrawal Scenarios**

**Withdrawals Increase At An Assumed Inflation Rate of 3%**

Scenario 1: \$100,000	109,273	112,551	115,927	119,405	122,987	126,677	130,477	134,392	138,423	142,576
Scenario 2: \$125,000	136,591	140,689	144,909	149,257	153,734	158,346	163,097	167,990	173,029	178,220
Scenario 3: \$150,000	163,909	168,826	173,891	179,108	184,481	190,016	195,716	201,587	207,635	213,864
Scenario 4: \$175,000	191,227	196,964	202,873	208,959	215,228	221,685	228,335	235,185	242,241	249,508
Scenario 5: \$125k 10 Years, \$100k	136,591	140,689	144,909	149,257	153,734	158,346	163,097	167,990	173,029	178,220

**Required Portfolio Withdrawals**

Scenario 1: \$100,000	0	0	0	0	0	0	0	0	0	0
Scenario 2: \$125,000	0	-14,793	-18,817	-3,741	-7,825	-12,040	-16,389	-20,877	-25,507	-30,284
Scenario 3: \$150,000	0	-42,931	-47,799	-33,592	-38,572	-43,709	-49,008	-54,475	-60,113	-65,928
Scenario 4: \$175,000	-6,921	-71,069	-76,781	-63,444	-69,319	-75,378	-81,628	-88,072	-94,719	-101,572
Scenario 5: \$125k 10 Years, \$100k	0	-14,793	-18,817	-3,741	-7,825	-12,040	-16,389	-20,877	-25,507	-30,284



**John Retires 65 / Jane Retires 62**  
**Expected 10-Year Cash Flow**

	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>
<b><u>John/Jane Age (as of Dec 31)</u></b>	66/63	67/64	68/65	69/66	70/67	71/68	72/69	73/70	74/71	75/72
<b><u>Income Sources</u></b>										
John Pension	68,616	68,616	68,616	68,616	68,616	68,616	68,616	68,616	68,616	68,616
John Social	27,564	27,840	28,118	28,399	28,683	28,970	29,260	29,552	29,848	30,146
Jane Salary	0	0	0	0	0	0	0	0	0	0
Jane Pension	56,400	56,400	56,400	56,400	56,400	56,400	56,400	56,400	56,400	56,400
Jane Social	<u>19,224</u>	<u>19,416</u>	<u>19,610</u>	<u>19,807</u>	<u>20,005</u>	<u>20,205</u>	<u>20,407</u>	<u>20,611</u>	<u>20,817</u>	<u>21,025</u>
<b>Total Income</b>	<b>171,804</b>	<b>172,272</b>	<b>172,744</b>	<b>173,222</b>	<b>173,704</b>	<b>174,191</b>	<b>174,683</b>	<b>175,179</b>	<b>175,681</b>	<b>176,187</b>

**Withdrawal Scenarios**

**Withdrawals Increase At An Assumed Inflation Rate of 3%**

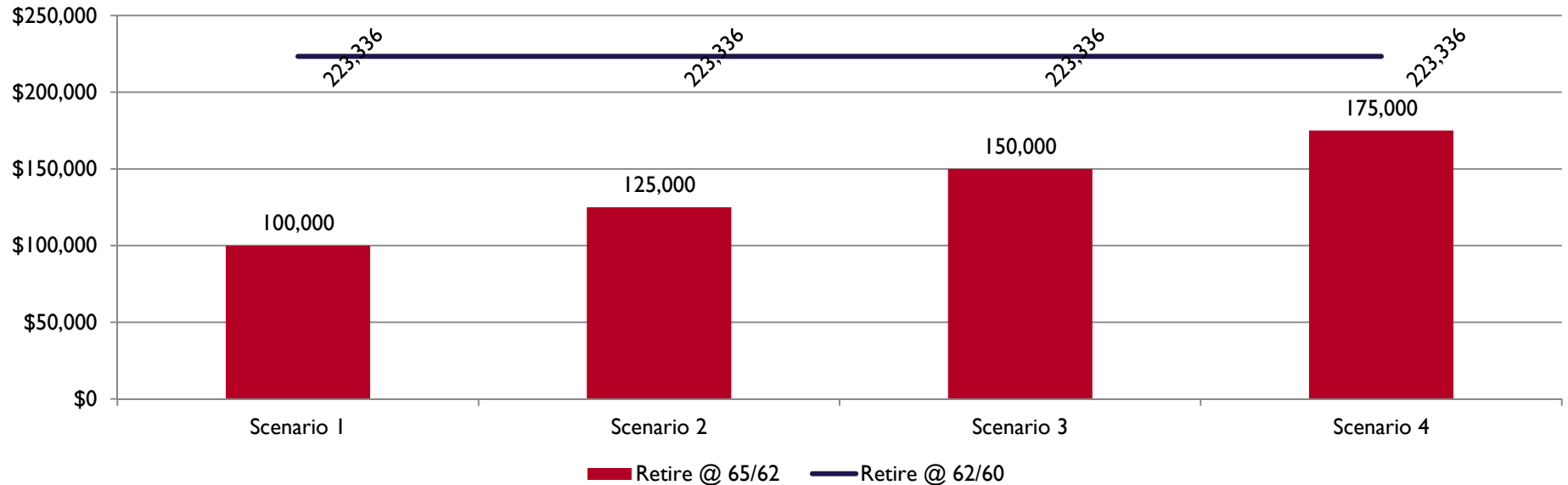
Scenario 1: \$100,000	119,405	122,987	126,677	130,477	134,392	138,423	142,576	146,853	151,259	155,797
Scenario 2: \$125,000	149,257	153,734	158,346	163,097	167,990	173,029	178,220	183,567	189,074	194,746
Scenario 3: \$150,000	179,108	184,481	190,016	195,716	201,587	207,635	213,864	220,280	226,888	233,695
Scenario 4: \$175,000	208,959	215,228	221,685	228,335	235,185	242,241	249,508	256,993	264,703	272,644
Scenario 5: \$150k 10 Years, \$125k	179,108	184,481	190,016	195,716	201,587	207,635	213,864	220,280	226,888	233,695

**Required Portfolio Withdrawals**

Scenario 1: \$100,000	0	0	0	0	0	0	0	0	0	0
Scenario 2: \$125,000	0	0	0	0	0	0	-3,538	-8,388	-13,393	-18,559
Scenario 3: \$150,000	-7,304	-12,209	-17,271	-22,494	-27,884	-33,444	-39,182	-45,101	-51,208	-57,508
Scenario 4: \$175,000	-37,155	-42,956	-48,940	-55,114	-61,482	-68,050	-74,826	-81,814	-89,023	-96,457
Scenario 5: \$150k 10 Years, \$125k	-7,304	-12,209	-17,271	-22,494	-27,884	-33,444	-39,182	-45,101	-51,208	-57,508



## Comparison Of Current Income Versus Retirement Income Scenarios



### Observations

- Currently, the Does' annual income (less 401(k) contributions) is \$223,336 (including short-term incentive pay). Excluding short-term incentive pay, their combined salaries are just under \$177,000.
- Normally, we seek to have approximately 90% of client's pre-retirement income during retirement. That will not be achievable in the Does' situation. The retirement income scenarios of \$100,000, \$125,000, \$150,000, and \$175,000 represent 45%, 56%, 67%, and 78% of the Does' pre-retirement income.



**Forecasted Asset Value When Jane is 100 (or Jane's Age When Assets Depleted)  
Assuming Different Retirement Ages  
Forecast Assumes Expected Capital Market Returns and \$496,000 In Starting Assets**

<u>25% Stock / 75% Bond</u>	<u>50% Stock / 50% Bond</u>	<u>60% Stock / 40% Bond</u>	<u>75% Stock / 25% Bond</u>
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**Retirement Age Scenario 1: John Retires At 62, Jane At 60**

<u>Expected Future Return Scenario</u>	<u>4.8%</u>	<u>5.5%</u>	<u>5.8%</u>	<u>6.3%</u>
Withdrawal Scenario 1: \$100,000	\$1,092,000	\$2,507,000	\$3,197,000	\$4,574,000
Withdrawal Scenario 2: \$125,000	(89)	(92)	(93)	(96)
Withdrawal Scenario 3: \$150,000	(78)	(80)	(81)	(82)
Withdrawal Scenario 4: \$175,000	(73)	(73)	(74)	(74)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	\$324,000	\$1,624,000	\$2,182,000	\$3,195,000

**Retirement Age Scenario 2: John Retires At 65, Jane At 62**

<u>Expected Future Return Scenario</u>	<u>4.8%</u>	<u>5.5%</u>	<u>5.8%</u>	<u>6.3%</u>
Withdrawal Scenario 1: \$100,000	\$3,385,000	\$5,349,000	\$6,205,000	\$7,847,000
Withdrawal Scenario 2: \$125,000	\$102,000	\$1,641,000	\$2,514,000	\$3,718,000
Withdrawal Scenario 3: \$150,000	(88)	(91)	(92)	(94)
Withdrawal Scenario 4: \$175,000	(80)	(82)	(82)	(84)
Withdrawal Scenario 5: \$150,000 For 10 Years, \$125,000 Thereafter	(96)	\$108,000	\$720,000	\$1,699,000





**Forecasted Asset Value When Jane is 100 (or Jane's Age When Assets Depleted)  
Assuming Different Retirement Ages  
Forecast Assumes Pessimistic Capital Market Returns and \$496,000 In Starting Assets**

<u>25% Stock / 75% Bond</u>	<u>50% Stock / 50% Bond</u>	<u>60% Stock / 40% Bond</u>	<u>75% Stock / 25% Bond</u>
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**Retirement Age Scenario 1: John Retires At 62, Jane At 60**

<u>Pessimistic Future Return Scenario</u>	<u>4.0%</u>	<u>4.4%</u>	<u>4.5%</u>	<u>4.7%</u>
Withdrawal Scenario 1: \$100,000	(100)	\$304,000	\$397,000	\$619,000
Withdrawal Scenario 2: \$125,000	(86)	(86)	(86)	(87)
Withdrawal Scenario 3: \$150,000	(76)	(76)	(77)	(76)
Withdrawal Scenario 4: \$175,000	(71)	(71)	(71)	(71)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	(97)	(99)	(99)	(100)

**Retirement Age Scenario 2: John Retires At 65, Jane At 62**

<u>Pessimistic Future Return Scenario</u>	<u>4.0%</u>	<u>4.4%</u>	<u>4.5%</u>	<u>4.7%</u>
Withdrawal Scenario 1: \$100,000	\$1,893,000	\$2,511,000	\$2,701,000	\$3,011,000
Withdrawal Scenario 2: \$125,000	(96)	(98)	(98)	(99)
Withdrawal Scenario 3: \$150,000	(85)	(86)	(86)	(86)
Withdrawal Scenario 4: \$175,000	(78)	(78)	(78)	(78)
Withdrawal Scenario 5: \$150,000 For 10 Years, \$125,000 Thereafter	(92)	(92)	(93)	(94)



**Forecasted Asset Value When Jane is 100 (or Jane's Age When Assets Depleted)  
Assuming Different Retirement Ages  
Forecast Assumes Catastrophic Capital Market Returns and \$496,000 In Starting Assets**

<u>25% Stock / 75% Bond</u>	<u>50% Stock / 50% Bond</u>	<u>60% Stock / 40% Bond</u>	<u>75% Stock / 25% Bond</u>
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**Retirement Age Scenario 1: John Retires At 62, Jane At 60**

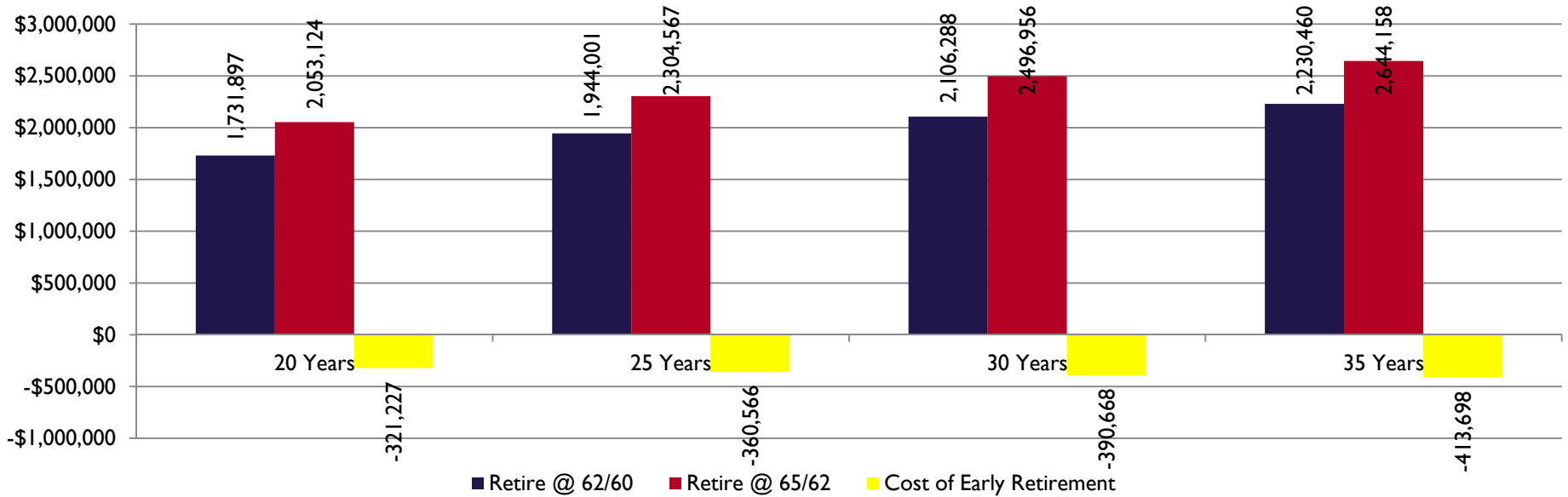
<u>Catastrophic Future Return Scenario</u>	<u>2.9%</u>	<u>2.7%</u>	<u>2.5%</u>	<u>2.4%</u>
Withdrawal Scenario 1: \$100,000	(94)	(93)	(92)	(91)
Withdrawal Scenario 2: \$125,000	(82)	(81)	(80)	(79)
Withdrawal Scenario 3: \$150,000	(74)	(73)	(73)	(72)
Withdrawal Scenario 4: \$175,000	(70)	(69)	(69)	(68)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	(91)	(90)	(89)	(88)

**Retirement Age Scenario 2: John Retires At 65, Jane At 62**

<u>Catastrophic Future Return Scenario</u>	<u>2.9%</u>	<u>2.7%</u>	<u>2.5%</u>	<u>2.4%</u>
Withdrawal Scenario 1: \$100,000	\$438,000	206,000	\$53,000	(100)
Withdrawal Scenario 2: \$125,000	(91)	(89)	(89)	(88)
Withdrawal Scenario 3: \$150,000	(82)	(80)	(80)	(79)
Withdrawal Scenario 4: \$175,000	(75)	(75)	(74)	(74)
Withdrawal Scenario 5: \$150,000 For 10 Years, \$125,000 Thereafter	(87)	(87)	(85)	(84)



## The Value of Guaranteed Income (Caterpillar Pension & Social Security)



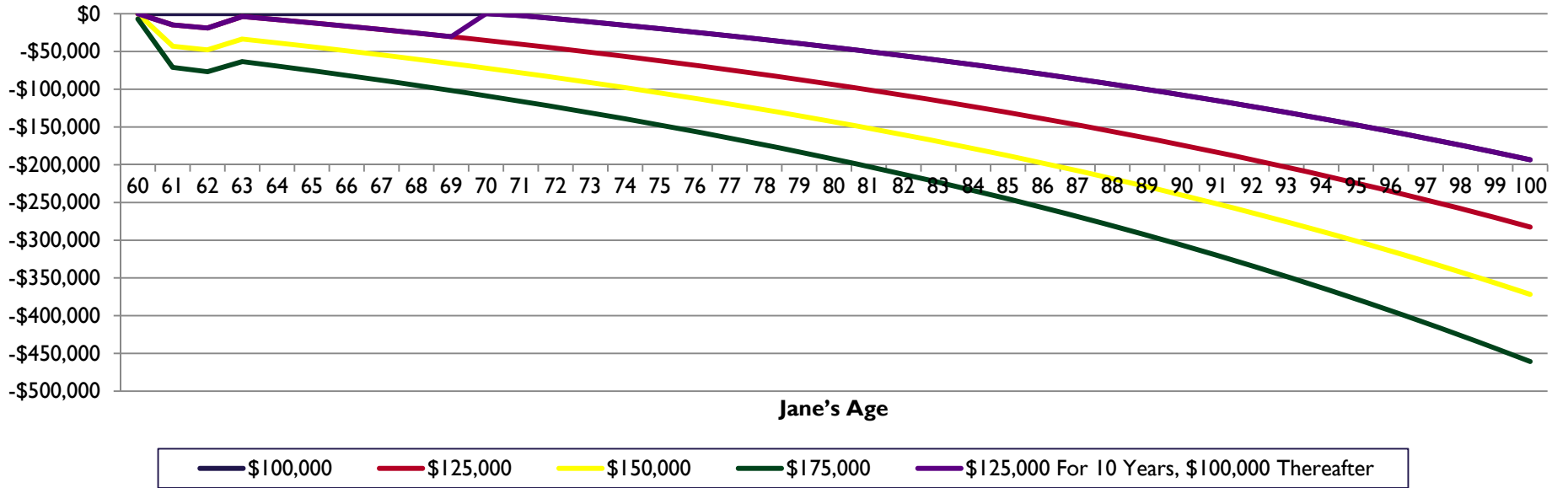
### Observations

- This chart computes the present value (at age 62 and 65, respectively) of John and Jane’s Caterpillar pension and Social Security benefit for different retirement lengths assuming a discount rate of 5.5%.
- Needless to say, the value of the benefit is substantial. The “cost” of retiring early is between \$320,000 and \$414,000 depending on the length of retirement. It is not surprising that the income difference increases as the retirement period lengthens since John and Jane would be foregoing the incremental retirement benefits for a longer period of time.



## Appendix I: Detailed Charts Assuming John Retires At 62, Jane At 60

## Annual Income Shortfall (Inflation-Adjusted Expense Less Income Sources)



**John Retires Age 62 Jane Retires Age 60**  
**Forecasted Asset Value When Jane is 100 or (Jane's Age When Assets Depleted)**  
**\$496,000 In Starting Assets**

	<u>25% Stock / 75% Bond</u>	<u>50% Stock / 50% Bond</u>	<u>60% Stock / 40% Bond</u>	<u>75% Stock / 25% Bond</u>
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<u>Expected Future Return Scenario</u>	<u>4.8%</u>	<u>5.5%</u>	<u>5.8%</u>	<u>6.3%</u>
Withdrawal Scenario 1: \$100,000	\$1,092,000	\$2,507,000	\$3,197,000	\$4,574,000
Withdrawal Scenario 2: \$125,000	(89)	(92)	(93)	(96)
Withdrawal Scenario 3: \$150,000	(78)	(80)	(81)	(82)
Withdrawal Scenario 4: \$175,000	(73)	(73)	(74)	(74)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	\$324,000	\$1,624,000	\$2,182,000	\$3,195,000

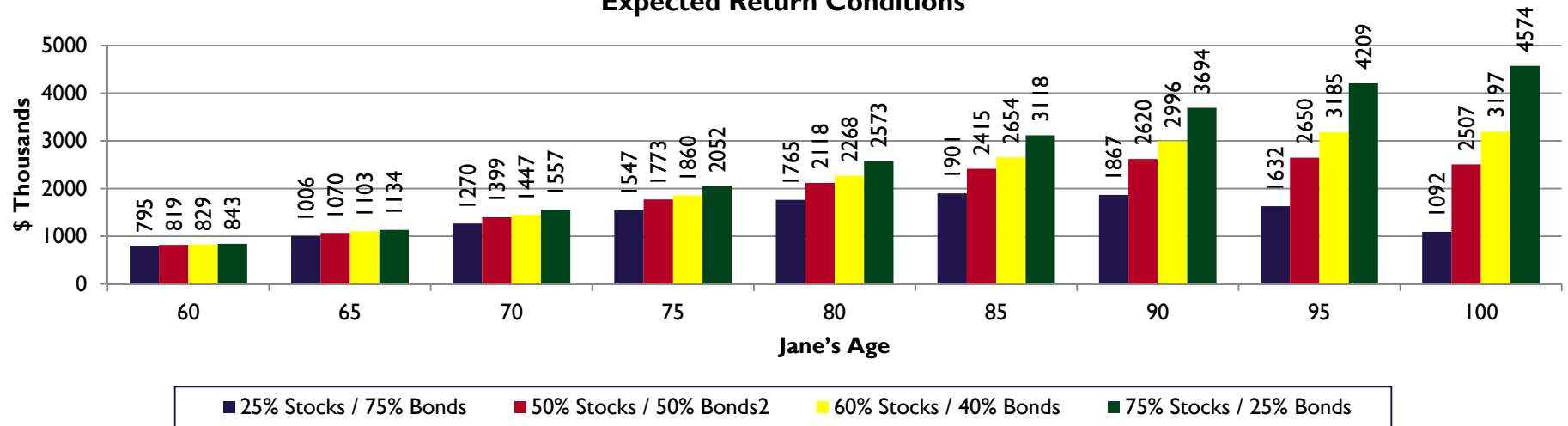
<u>Pessimistic Future Return Scenario</u>	<u>4.0%</u>	<u>4.4%</u>	<u>4.5%</u>	<u>4.7%</u>
Withdrawal Scenario 1: \$100,000	(100)	\$304,000	\$397,000	\$619,000
Withdrawal Scenario 2: \$125,000	(86)	(86)	(86)	(87)
Withdrawal Scenario 3: \$150,000	(76)	(76)	(77)	(76)
Withdrawal Scenario 4: \$175,000	(71)	(71)	(71)	(71)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	(97)	(99)	(99)	(100)

<u>Catastrophic Future Return Scenario</u>	<u>2.9%</u>	<u>2.7%</u>	<u>2.5%</u>	<u>2.4%</u>
Withdrawal Scenario 1: \$100,000	(94)	(93)	(92)	(91)
Withdrawal Scenario 2: \$125,000	(82)	(81)	(80)	(79)
Withdrawal Scenario 3: \$150,000	(74)	(73)	(73)	(72)
Withdrawal Scenario 4: \$175,000	(70)	(69)	(69)	(68)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	(91)	(90)	(89)	(88)

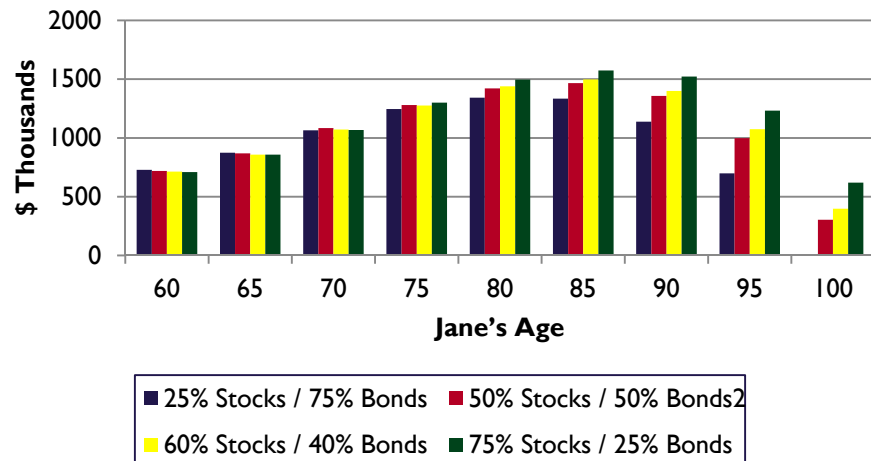


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000**  
**Withdrawal Scenario I: Inflation-Adjusted \$100,000**

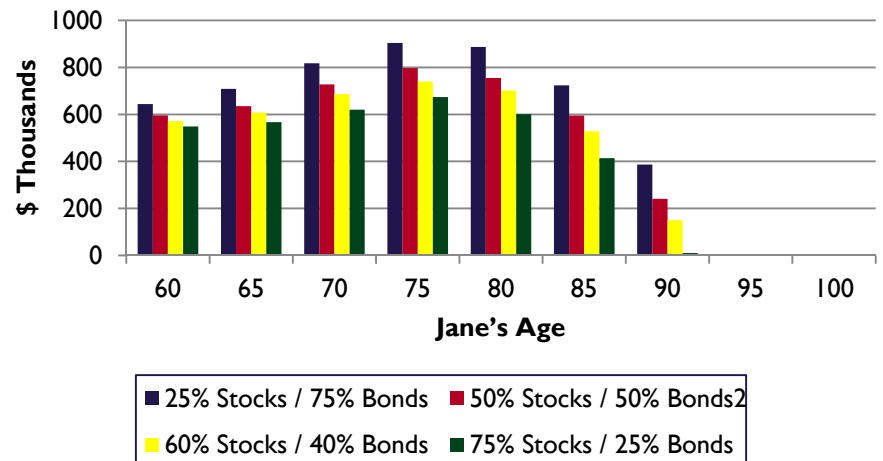
**Expected Return Conditions**



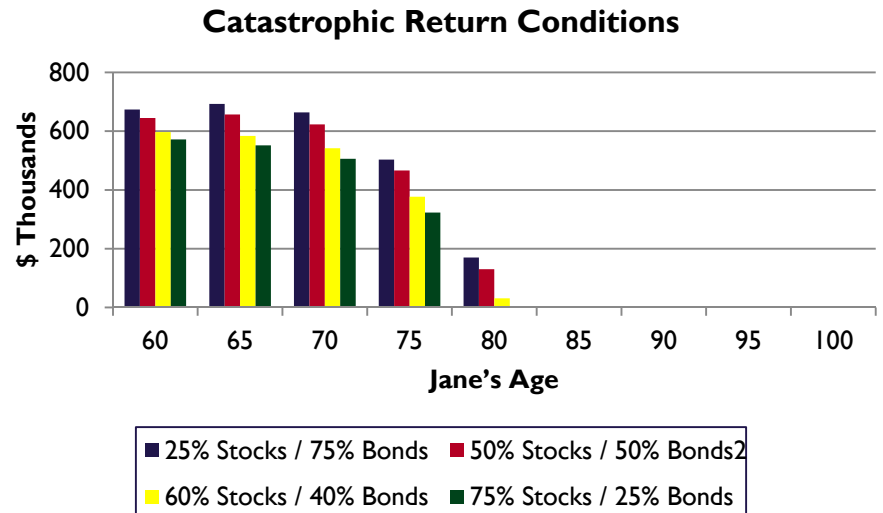
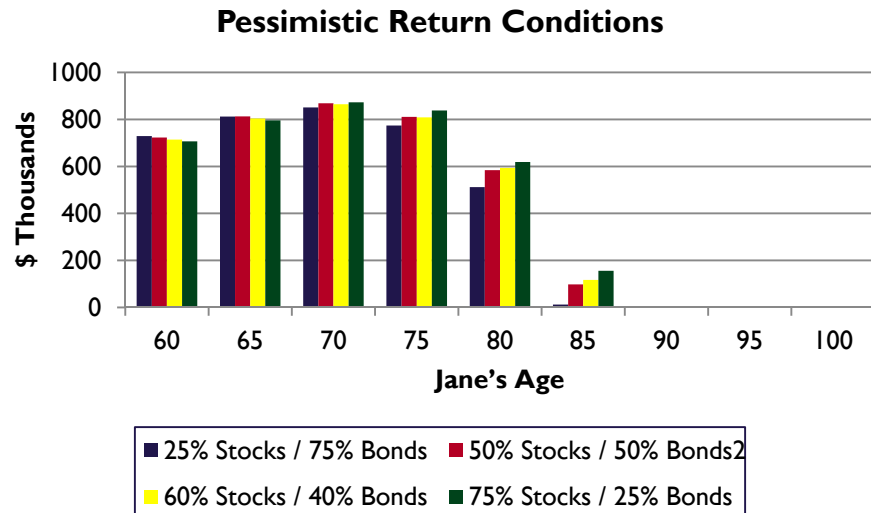
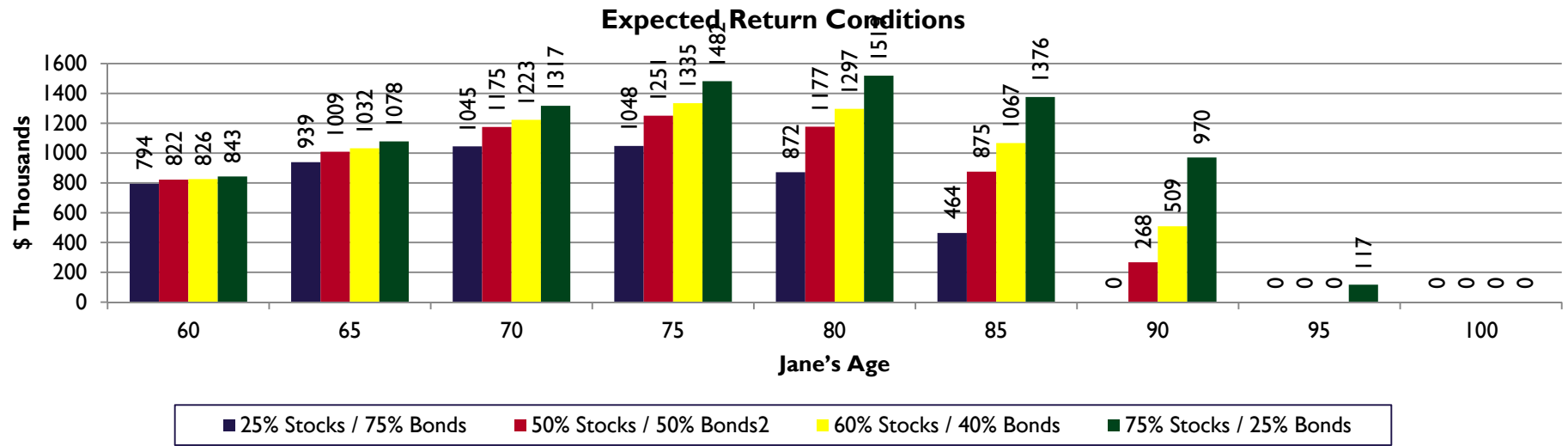
**Pessimistic Return Conditions**



**Catastrophic Return Conditions**

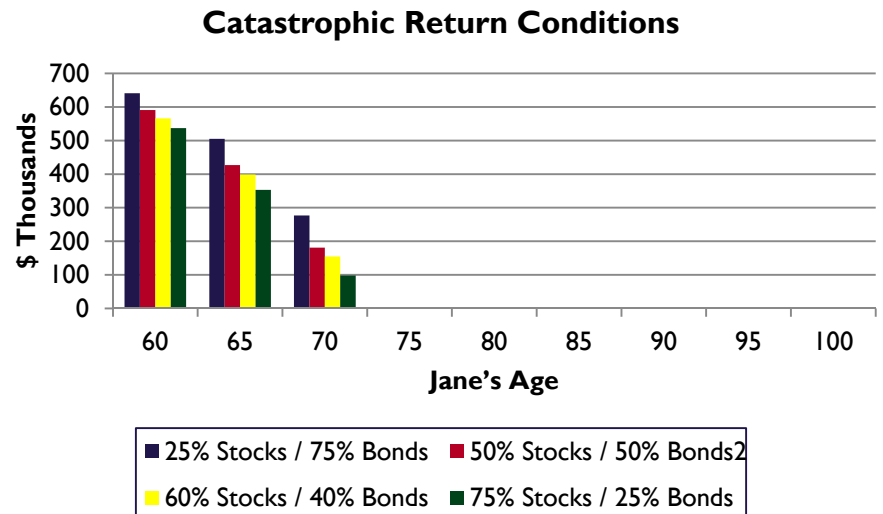
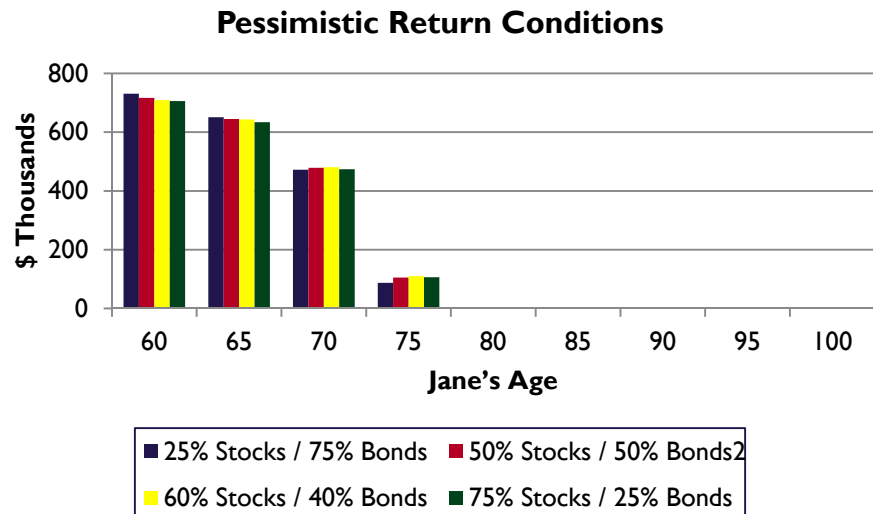
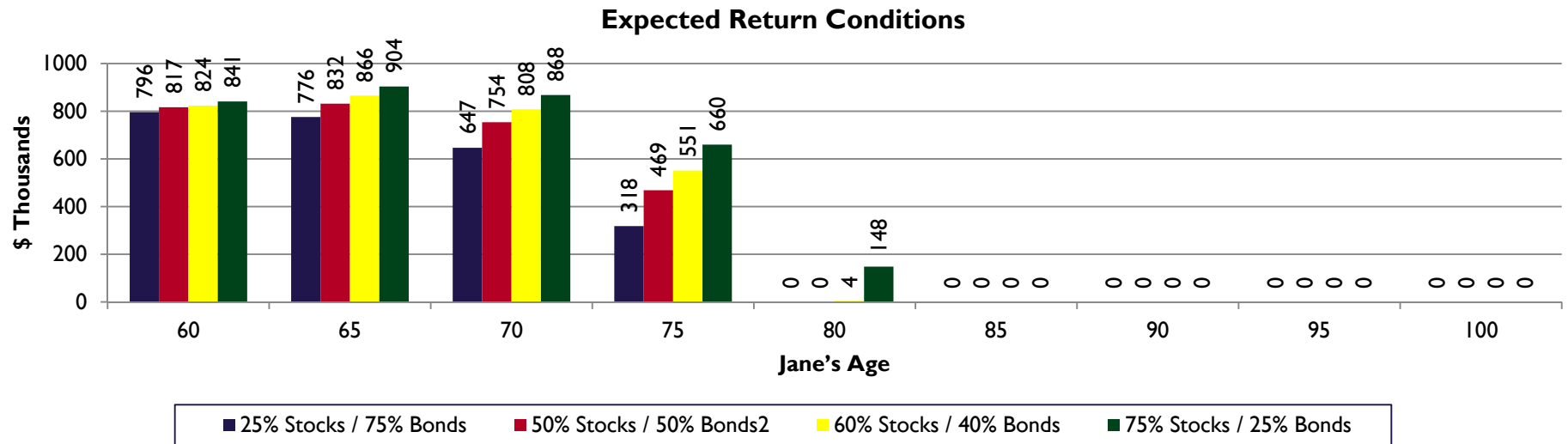


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000**  
**Withdrawal Scenario 2: Inflation-Adjusted \$125,000**



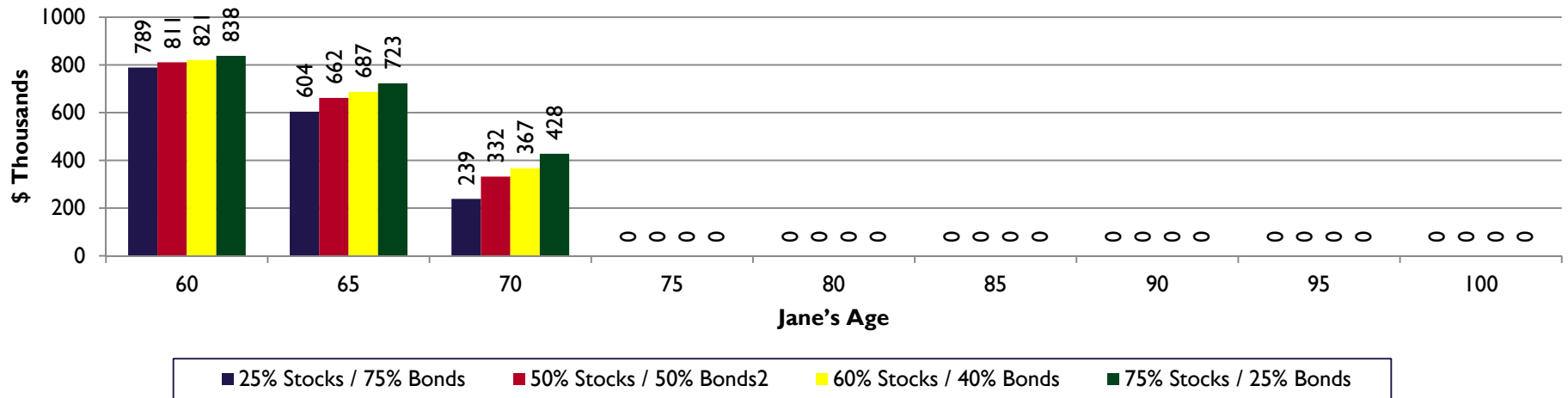


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000  
Withdrawal Scenario 3: Inflation-Adjusted \$150,000**

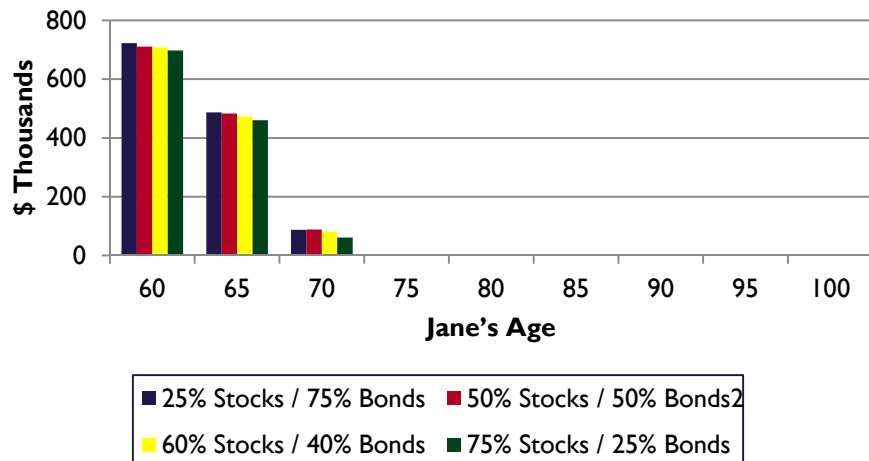


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000  
Withdrawal Scenario 4: Inflation Adjusted \$175,000**

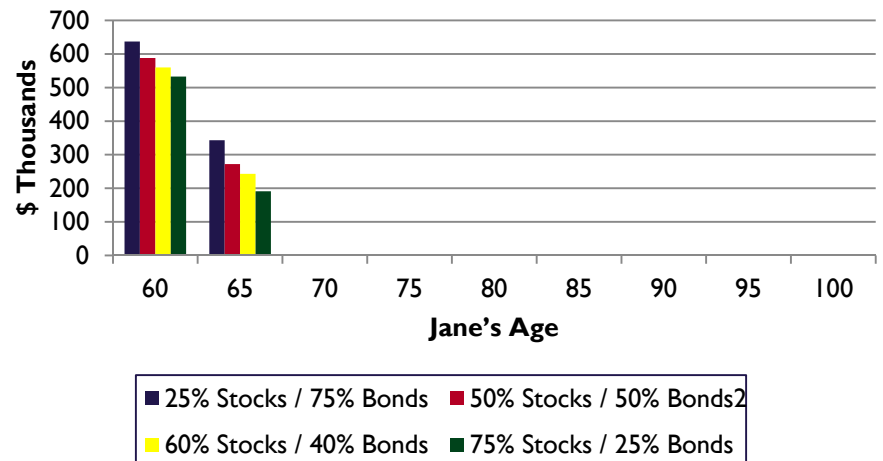
**Expected Return Conditions**



**Pessimistic Return Conditions**

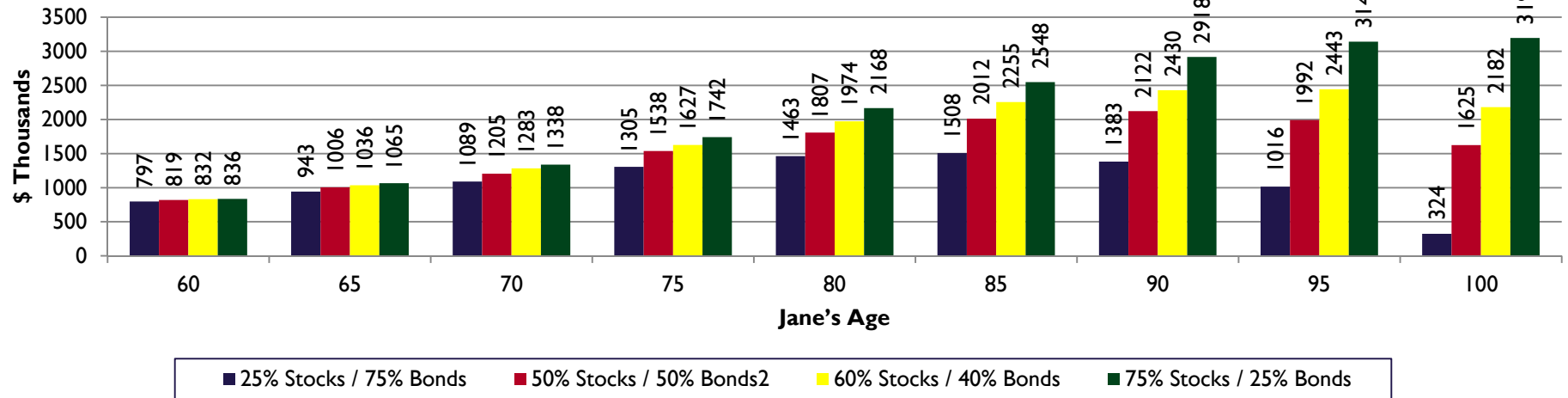


**Catastrophic Return Conditions**

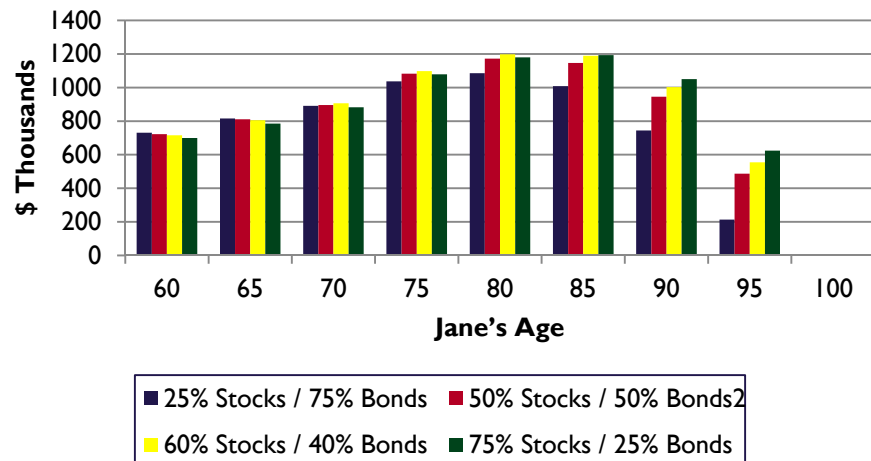


**Estimated Asset Values At Different Ages: Starting Asset Value \$ 496,000**  
**Withdrawal Scenario 5: Inflation Adjusted \$125,000 For 10 Years; \$100,000 Thereafter**

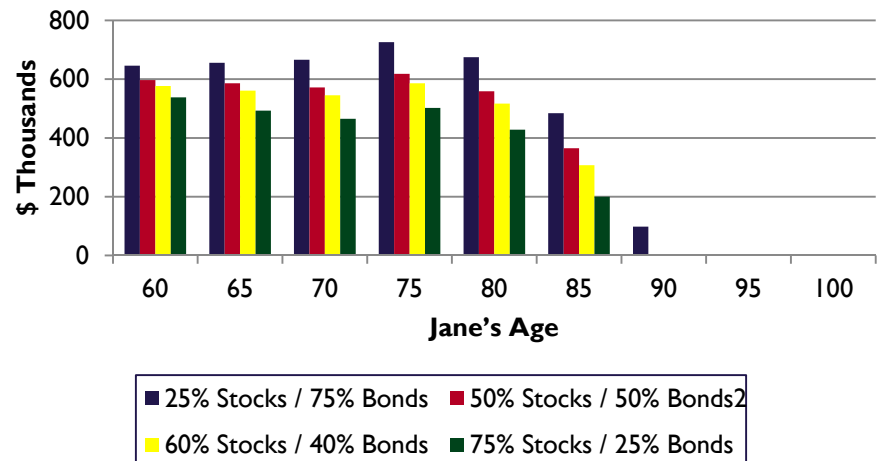
**Expected Return Conditions**



**Pessimistic Return Conditions**

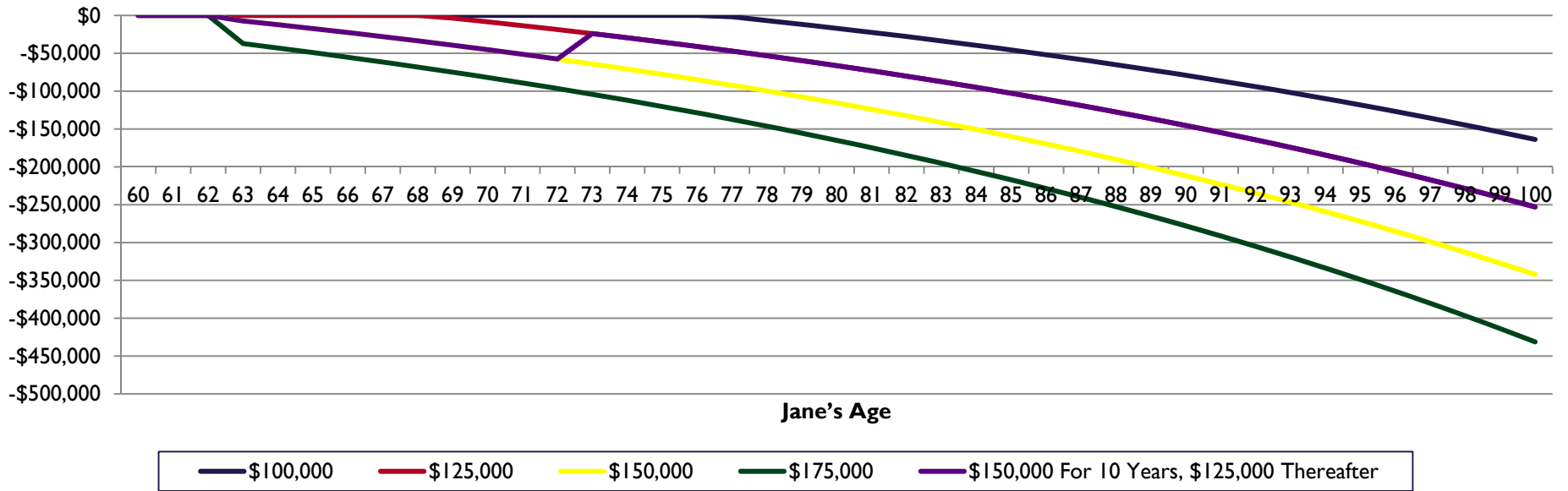


**Catastrophic Return Conditions**



## Appendix 2: Detailed Charts Assuming John Retires At 65, Jane At 62

## Annual Income Shortfall (Inflation-Adjusted Expense Less Income Sources)



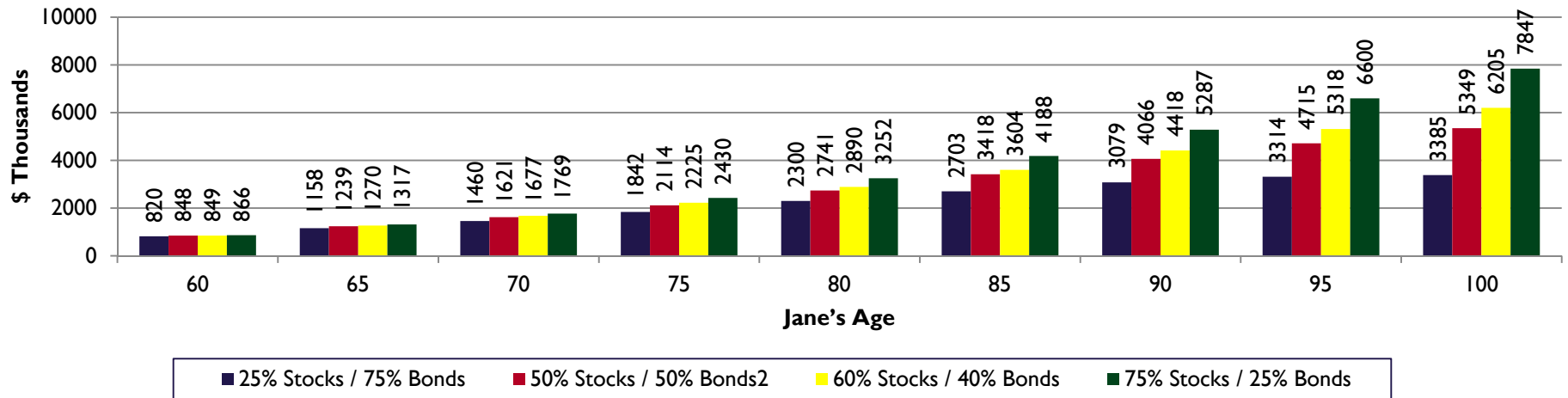
**John Retires Age 65 Jane Retires Age 62**  
**Forecasted Asset Value When Jane is 100 or (Jane's Age When Assets Depleted)**  
**\$496,000 In Starting Assets**

	<u>25% Stock / 75% Bond</u>	<u>50% Stock / 50% Bond</u>	<u>60% Stock / 40% Bond</u>	<u>75% Stock / 25% Bond</u>
<b><u>Expected Future Return Scenario</u></b>	<b>4.8%</b>	<b>5.5%</b>	<b>5.8%</b>	<b>6.3%</b>
Withdrawal Scenario 1: \$100,000	\$3,385,000	\$5,349,000	\$6,205,000	\$7,847,000
Withdrawal Scenario 2: \$125,000	\$102,000	\$1,641,000	\$2,514,000	\$3,718,000
Withdrawal Scenario 3: \$150,000	(88)	(91)	(92)	(94)
Withdrawal Scenario 4: \$175,000	(80)	(82)	(82)	(84)
Withdrawal Scenario 5: \$150,000 For 10 Years, \$125,000 Thereafter	(96)	\$108,000	\$720,000	\$1,699,000
<b><u>Pessimistic Future Return Scenario</u></b>	<b>4.0%</b>	<b>4.4%</b>	<b>4.5%</b>	<b>4.7%</b>
Withdrawal Scenario 1: \$100,000	\$1,893,000	\$2,511,000	\$2,701,000	\$3,011,000
Withdrawal Scenario 2: \$125,000	(96)	(98)	(98)	(99)
Withdrawal Scenario 3: \$150,000	(85)	(86)	(86)	(86)
Withdrawal Scenario 4: \$175,000	(78)	(78)	(78)	(78)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	(92)	(92)	(93)	(94)
<b><u>Catastrophic Future Return Scenario</u></b>	<b>2.9%</b>	<b>2.7%</b>	<b>2.5%</b>	<b>2.4%</b>
Withdrawal Scenario 1: \$100,000	\$438,000	206,000	\$53,000	(100)
Withdrawal Scenario 2: \$125,000	(91)	(89)	(89)	(88)
Withdrawal Scenario 3: \$150,000	(82)	(80)	(80)	(79)
Withdrawal Scenario 4: \$175,000	(75)	(75)	(74)	(74)
Withdrawal Scenario 5: \$125,000 For 10 Years, \$100,000 Thereafter	(87)	(87)	(85)	(84)

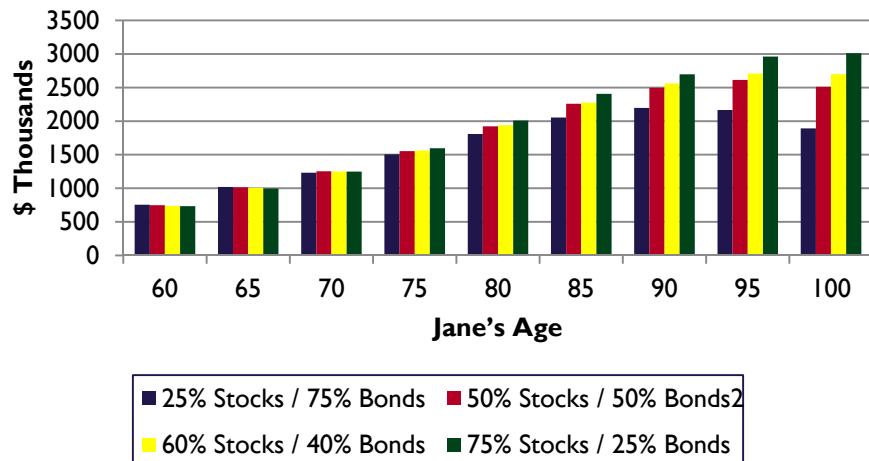


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000**  
**Withdrawal Scenario I: Inflation-Adjusted \$100,000**

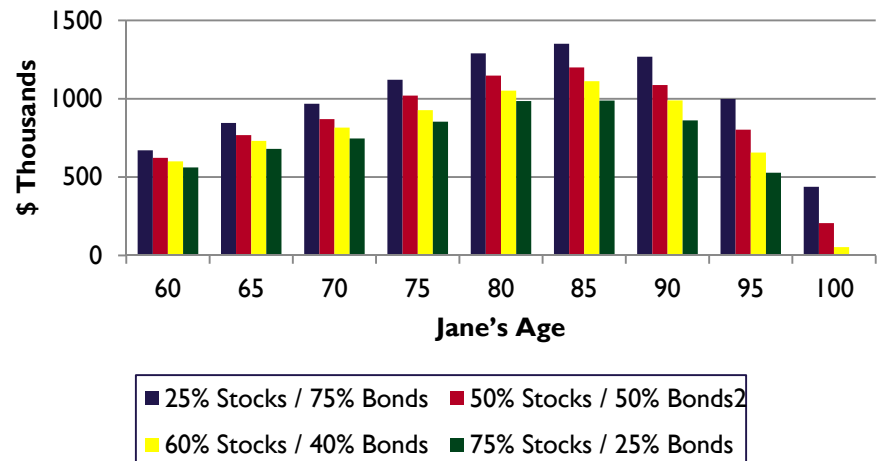
**Expected Return Conditions**



**Pessimistic Return Conditions**

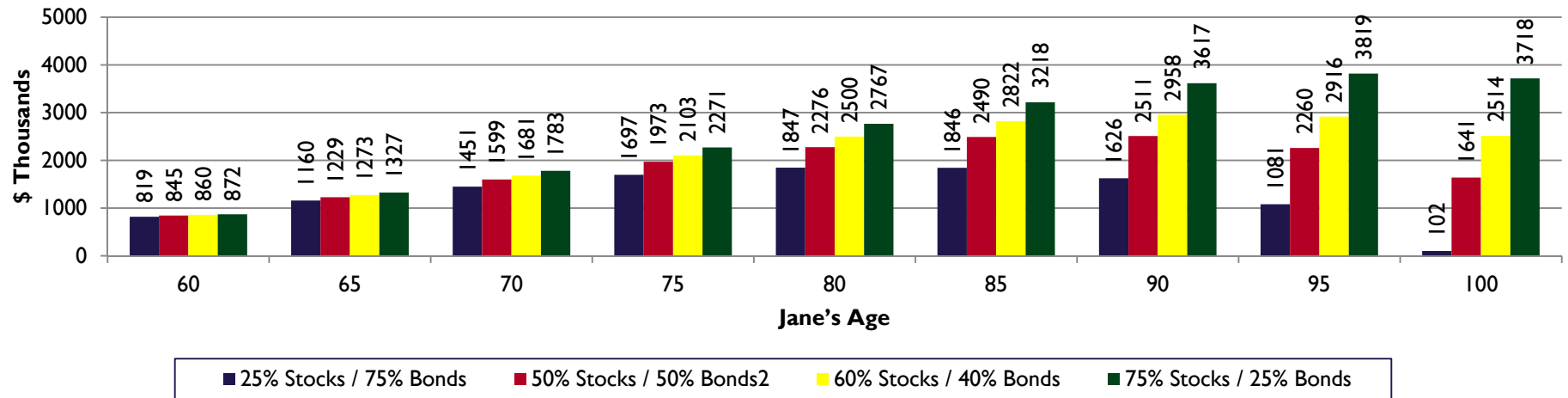


**Catastrophic Return Conditions**

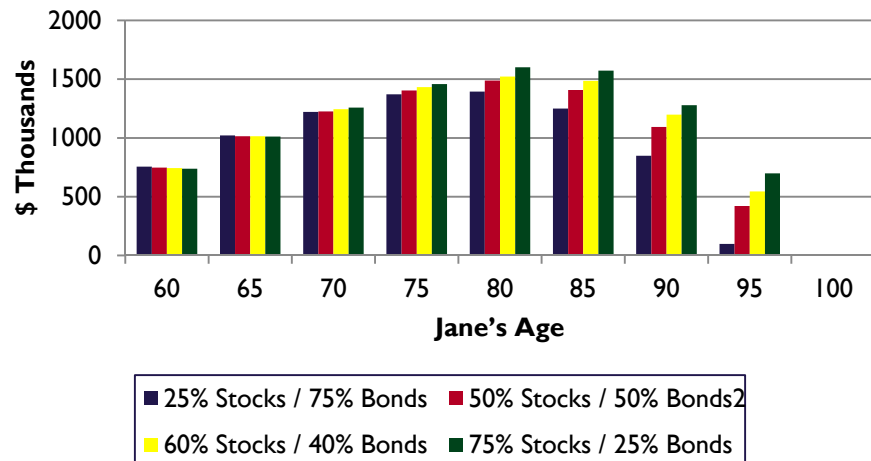


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000  
Withdrawal Scenario 2: Inflation-Adjusted \$125,000**

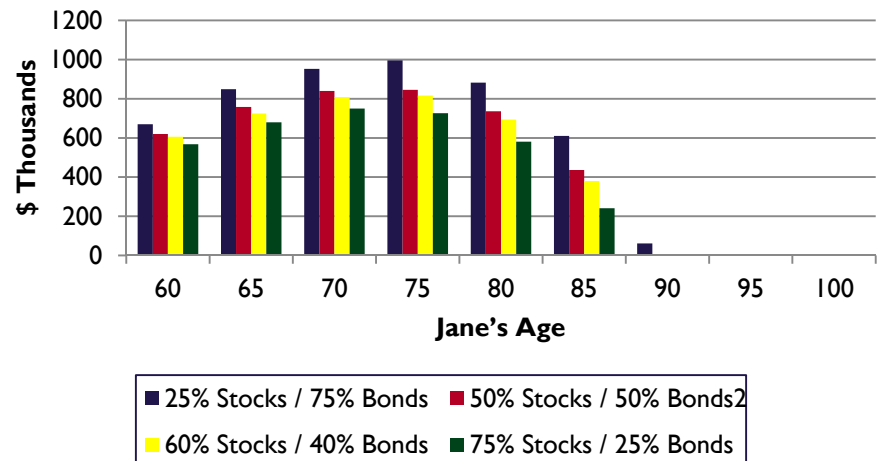
**Expected Return Conditions**



**Pessimistic Return Conditions**

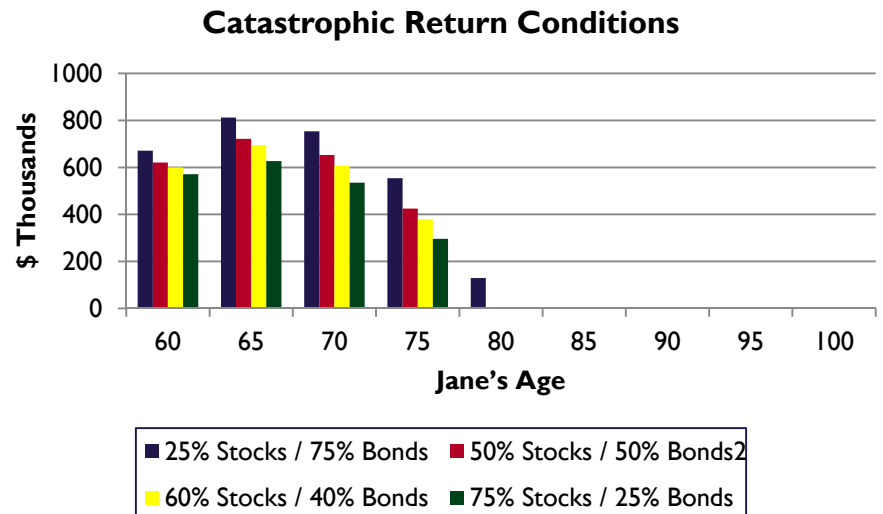
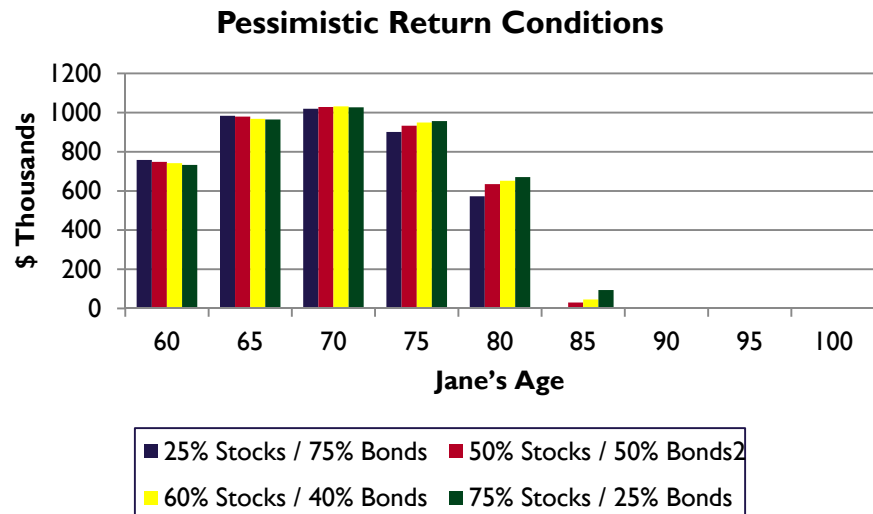
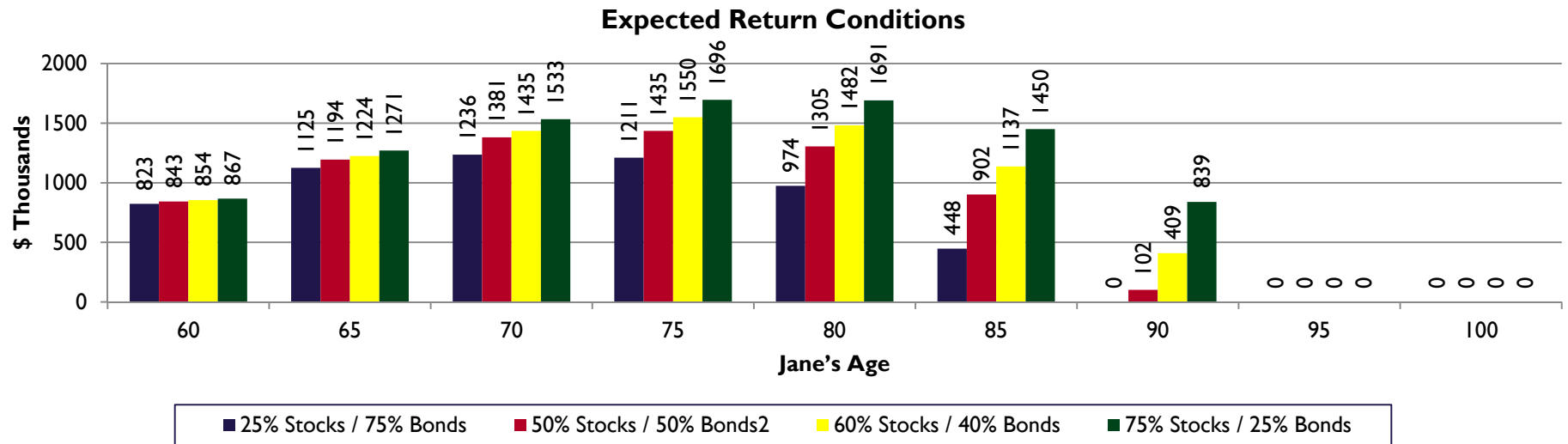


**Catastrophic Return Conditions**

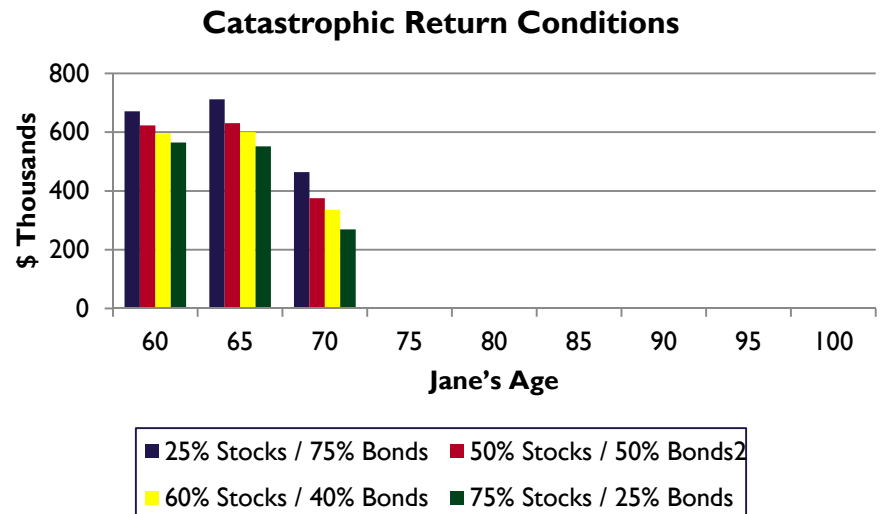
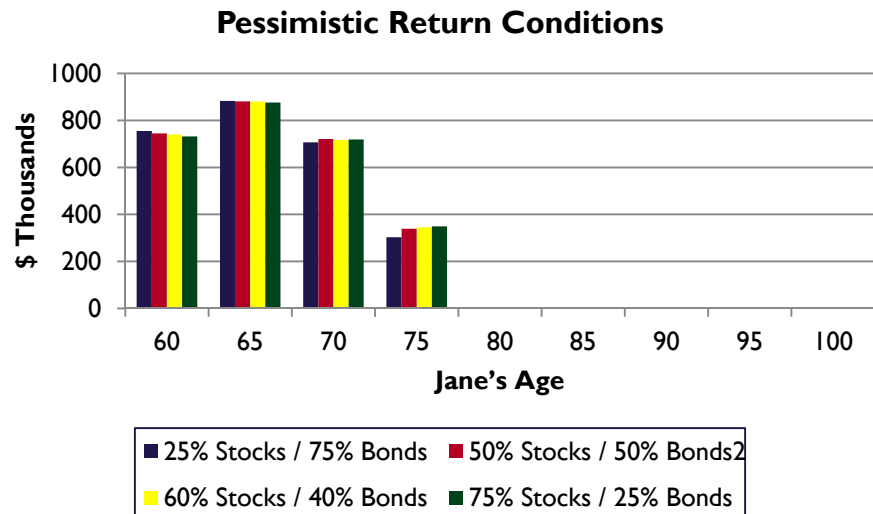
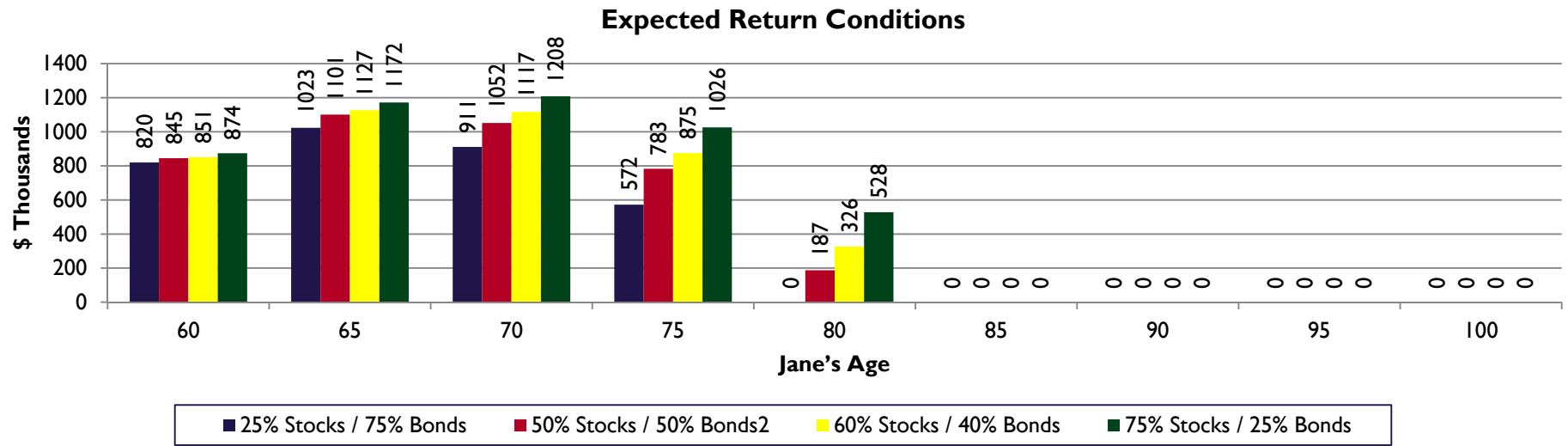




**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000**  
**Withdrawal Scenario 3: Inflation-Adjusted \$150,000**

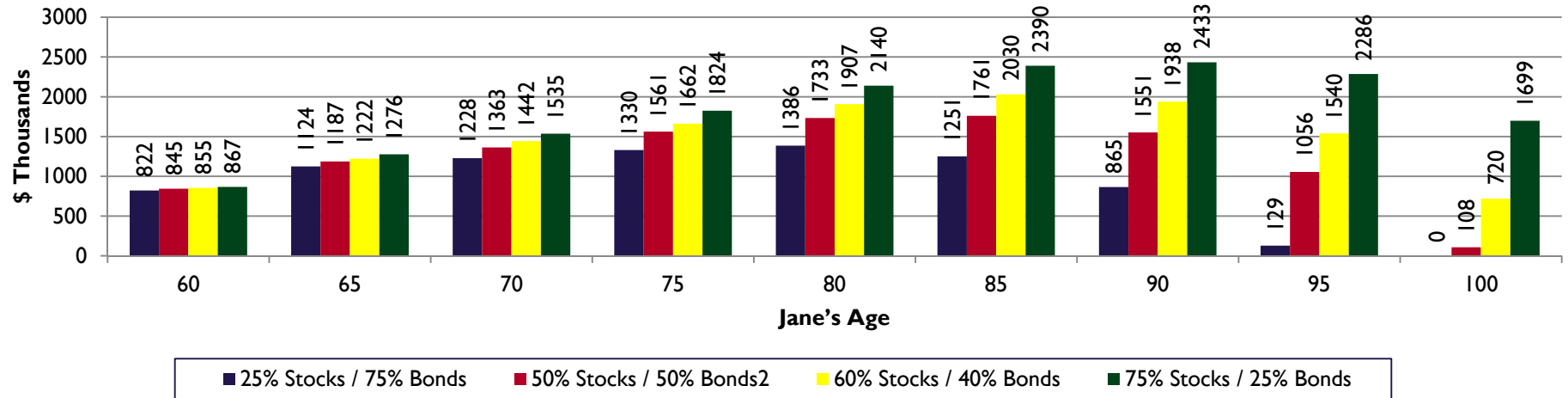


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000  
Withdrawal Scenario 4: Inflation Adjusted \$175,000**

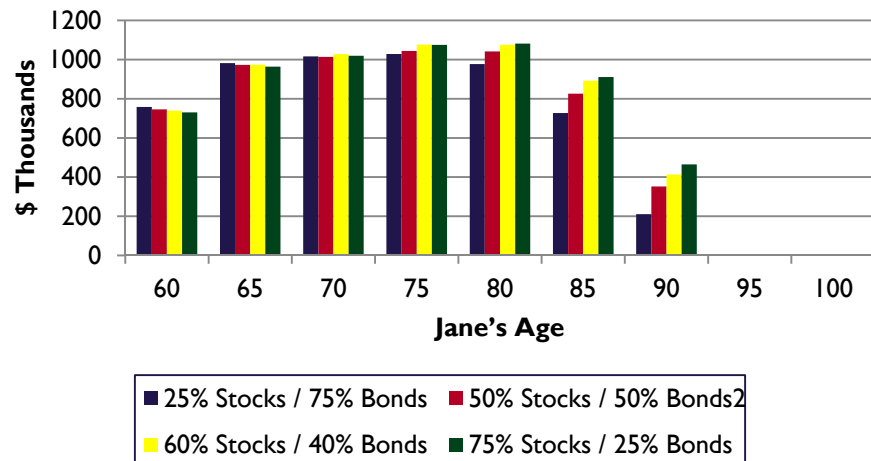


**Estimated Asset Values At Different Ages: Starting Asset Value \$496,000**  
**Withdrawal Scenario 5: Inflation Adjusted \$125,000 For 10 Years; \$100,000 Thereafter**

**Expected Return Conditions**



**Pessimistic Return Conditions**



**Catastrophic Return Conditions**

