

## Votaire Assumptions and Methodology

**Data** Data for actuarial projection is based on user input and linked accounts. Where relevant data may be missing, we have made assumptions we feel are reasonable or representative of the general population.

While Votaire has attempted to prevent unreasonable data inputs, individual data has not been reviewed for completeness or reasonableness, and therefore Votaire does not accept responsibility for the accuracy or completeness of the data on which its proprietary algorithms are applied. Actuarial measurements will improve in reasonableness as more data is provided.

**Retirement Assets** Assets are projected to retirement age based on the market return assumptions specified below. There are assumed to be no contributions to assets unless specified otherwise by the user.

**Market Return** Market return is based on J.P. Morgan 2016 Long-Term Capital Market Assumptions<sup>1</sup> and developed using Monte Carlo simulations less approximate investment fees. Sample market returns after inflation are as shown below:

Investor Type	Market Return
Conservative	1.5%
Moderate	2.9%
Aggressive	3.2%

**Inflation** 2.25% annually; based on J.P. Morgan 2016 Long-Term Capital Market Assumptions<sup>1</sup>.

**Salary Growth** Salary growth rate is based on the intermediate assumptions for the average wage index in the 2016 Social Security Trustees Report.

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<sup>1</sup> J.P. Morgan. (2015). *2016 Long-Term Capital Market Assumptions*. Retrieved from <https://am.jpmorgan.com/blob-gim/1383276217232/83456/LTCMA-2016-White-Paper-Eur.pdf>

**Longevity**

Life expectancy before adjustments is based on SOA RP-2014 mortality table adjusted backward to 2006 and projected with generational improvements using SOA Scale MP-2014. Adjustments are made for hereditary and lifestyle factors.

**Social Security Income**

Social Security retirement income calculation is based on the Social Security Administration’s Quick Calculator and calculation details from the Social Security Administration<sup>2</sup>. Historical salaries are estimated based on latest salary and projected forward to retirement age and backward to age 22<sup>3</sup> using the Social Security Wage Index.

**Expenses**

Expenses are assumed to grow with inflation and fluctuate according to national spending habits.

**Withdrawal Rates**

Withdrawals from savings are designed to smooth total income throughout lifetime based on the longevity assumption. Withdrawals are increased annually with inflation and situationally to cover extra projected costs, *e.g.*, a large one-year vacation, and are assumed to decrease for married couples upon the first death.

**Taxes on Account Withdrawals**

Withdrawals from retirement accounts are assumed to be withdrawn proportionately to each account’s balance in respect to overall wealth. For example, at a withdrawal rate of 4%, a breakdown of taxable income from account withdrawals is as follows:

IRA	Account Balance	Withdrawal	Withdrawal Taxable as Income
Traditional	\$ 750,000	\$ 30,000	\$ 30,000
Roth	\$ 250,000	\$ 10,000	\$ 0
<b>Total</b>	<b>\$ 1,000,000</b>	<b>\$ 40,000</b>	<b>\$ 30,000</b>

<sup>2</sup> Social Security Administration. (2016). *Your Retirement Benefit: How It's Figured*. Retrieved from <https://www.ssa.gov/pubs/EN-05-10070.pdf>

<sup>3</sup> If original hire age is not available

**Healthcare**

Pre-Medicare premium costs are based on the second lowest cost silver plan premium from ACA Exchange data and are specific to user zip code. Premiums are net of any applicable ACA subsidies. If no zip code is provided or no data is available, premiums are based on first state averages and then national averages. Out-of-Pocket (OOP) spending is based on Bureau of Labor Statistics CE survey and adjusted for gender cost factors. Premiums are projected forward using the Healthcare Cost Trend; OOP spending is projected forward using inflation.

Post-Medicare spending assumes free Medicare Part A coverage and actual Medicare Part B costs plus income-related surcharges and is projected forward using the healthcare cost trend. Medicare Part D coverage is based on data from Q1Medicare.com and includes income-related surcharges; it is projected forward using Healthcare Cost Trend. User is assumed to elect Medicare Supplement Plan F. Plan F premiums are based on data from eHealthMedicarePlans.com and are assumed to follow healthcare cost trend minus 3%, with a floor at 2.5%.

**Healthcare Cost Trend**

Healthcare cost trend follows the SOA Getzen model with an initial trend of 7.5% and an ultimate trend of 4.83%.

**Long-Term Care**

Long-term care premiums are based on Genworth data. Coverage is assumed to have a maximum daily benefit of \$150 per day with a benefit multiplier of two years. Couples are assumed to have a maximum daily benefit of \$150 per day per person for two years each.

**Federal Taxes**

Federal tax data is based on 2015 Form 1040 and accompanying instructions. Tax brackets and limits are assumed to increase with inflation. All income (including savings withdrawals) except Social Security are assumed to be fully taxable. Special considerations are taken into account for:

- Taxable Social Security benefits when income exceeds certain amounts
- Tax deductions and exemptions, as well as limitations when income exceeds certain amounts
- Whether itemized or standard deductions provide for a lower tax liability

Votaire's tax calculations have not been reviewed by a Certified Public Accountant. Projections are meant as an illustration and are not intended as actual advice.

<b>State Taxes</b>	State income tax calculations are based on state tax brackets and rates with special consideration taken into account for states that have no income tax or do not tax Social Security benefits. Tax brackets and limits are assumed to increase with inflation.
<b>Annuities</b>	Life annuity annual benefits are based on Votaire's proprietary algorithms. Annuity costs are based on CANNEX data.
<b>Deferred Annuity Payments</b>	Deferred annuity payments are calculated to smooth total lifetime income. The annuity's premium is generally between 7-10% of projected wealth at retirement.
<b>Income Needs</b>	<p>For users who are farther from retirement, income needs are based on projected healthcare expenses, taxes, and other fixed &amp; discretionary expenses, where those fixed &amp; discretionary expenses are a percentage of pre-retirement income based on data from the BLS Consumer Expenditure Survey.</p> <p>As the user nears retirement, fixed &amp; discretionary retirement expenses are drawn more from user input until they are eventually based entirely on user input.</p>
<b>Savings Contributions</b>	All savings contributions (both within and outside of the employer's plan) are assumed to be tax deferred and are assumed to grow at the same rate.
<b>Weather Forecast</b>	Weather forecast is based on a scoring mechanism that utilizes traditional actuarial funding methods.

The actuarial assumptions used in Votaire's proprietary algorithms represent a reasonable long-term expectation of future income, expense, and debt needs and obligations. The assumptions will be updated on a regular basis.

The actuarial assumptions and methodologies used in Votaire's proprietary algorithms are based on techniques from pension funding methods with built-in smoothing mechanisms. The actuarial findings shown on Votaire.com are only to illustrate retirement income and expenses and may not be appropriate for other purposes.

Votaire has no knowledge of a relationship with users that may cause a conflict of interest. Votaire's actuaries meet the Qualification Standards of the American Academy of Actuaries to render statements of actuarial opinion in the United States.

Future actuarial measurements may differ significantly from the current measurements presented on Votaire.com due to such factors as the following:

- Changes in the actuarial assumptions
- Market fluctuations and other deviations from the economic assumptions
- Life events and other deviations from the demographic assumptions