HELP MANUAL

RETIREMENT- OPTIMIZER

A guide to create optimized financial plans for a client's retirement

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Retirement-Optimizer – Getting Started

Creating the best retirement plan begins with an accurate description of the client's current financial status, plans, and goals in retirement. Once this is input, the software will calculate the most financially beneficial solution, given these parameters.

1. Gather the financial information together.

It is helpful to gather the client's information together before starting the software. For best results, enter the information as accurately as possible.

The **Addendum** at the end of this manual has a convenient worksheet for entering all the information required to create a useful retirement plan.

Once the information is gathered, entering it into the software will be easy.

To complete an analysis, you will need:

ACCOUNT INFORMATION: Key parameters such as the amount of the client's RRSP at retirement (or currently) or the client's defined benefit pension, that should be entered accurately.

ASSETS: Parameters such as house value and the year in which the client will sell their house (or other property), which are variable, but should be considered.

LIFESTYLE and EXPENSES: Some parameters are understood, such as the amount of money the client currently needs for living expenses. Other items, such as travel or new vehicles, are optional and must be estimated. What income levels does the client expect to require to live a comfortable lifestyle through the various phases of retirement? Consider active years in early retirement, quiet years when life is lived at a slower pace, and the final years when outside care may be required.

ASSUMPTIONS: These include projections for inflation. The client's expenses will be automatically increased by the inflation amount entered. The client's pensions, investments, and assets will also grow in value. Enter an estimate of their growth, keeping in mind the earlier inflation estimate.

To compare assumptions: Enter zero as an inflation estimate the first time running a portfolio analysis, with some very conservative post-retirement growth estimates for assets and investments. Then, adjust these inflation and growth values to a set of conservative assumptions and re-run the analysis. For easy comparisons of the different values, rename your saved file at **Step 11** each time you run the analysis.

2. Register at Retirement-Optimizer.ca

The link to register is: https://retirement-optimizer.ca/register

3. Create a new client summary

Further details of input fields are described under **Manage Clients**.

Click the Create Client button on the left-hand side and fill out the fields in the pop-up window. Once complete, select the client and use the Wizard to enter your information.

NOTE: The Wizard needs to be completed in one session and saved at **Step 11**.

Once all the information is entered, save the file (**Step 11**) and analyze the results: Run Jobs (**Step 12**). The analyses (jobs) are presented in a series of questions. The Help Manual can assist to navigate the analyses, or you can contact the Help Desk at Retirement-Optimizer.

Phone: (866) 383-6278

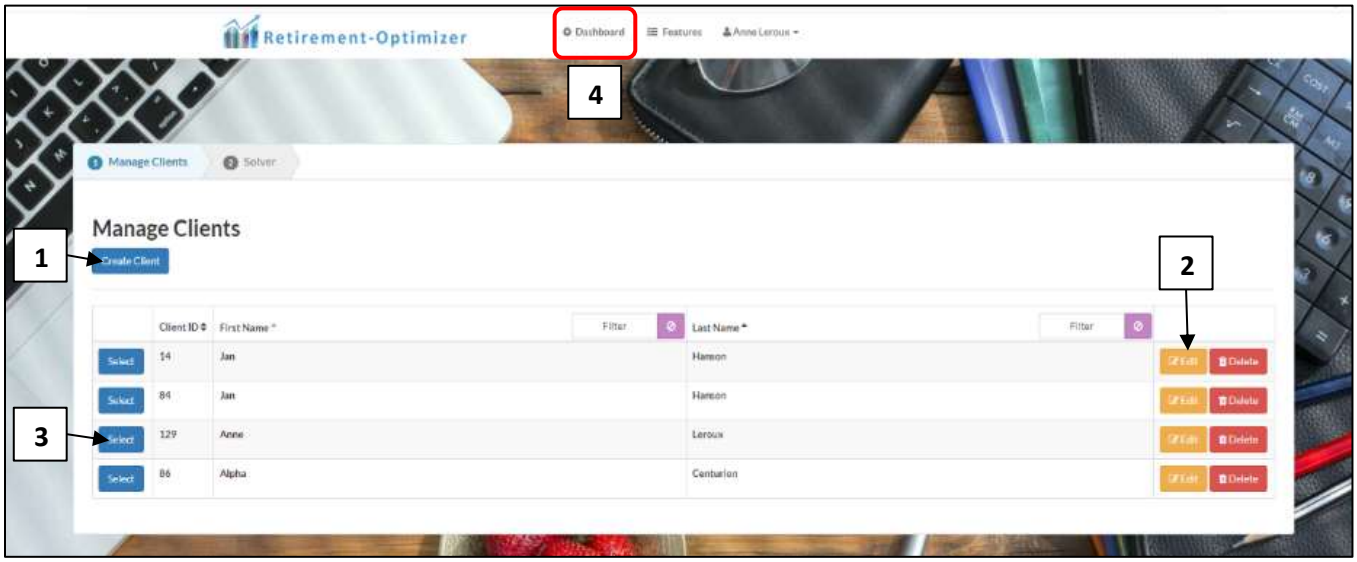
Email: inquiries@retirement-optimizer.ca

Alternately, you can schedule a demo: https://calendly.com/retirement-optimizer/demo

Part 1: Entering the Information

Manage Clients

1. Click on the Create Client button to create a new client. If you are using this software for your own plan, create yourself as a client.
    a. If the client has recognized Native Status, check off the final box as taxation and therefore analysis will differ.
2. You may later edit basic (tombstone) information about this client or delete a client by clicking on the buttons on the far right.
3. If you are working on a previously defined client, click the Select button on the left.
4. At any time, you can click on the Dashboard button to bring you back to this screen.



Solver: Wizard

If you are new to using this software, please consider using the Wizard for the first few plans. The Advanced button brings you to a screen that assumes you are familiar with the software functions.

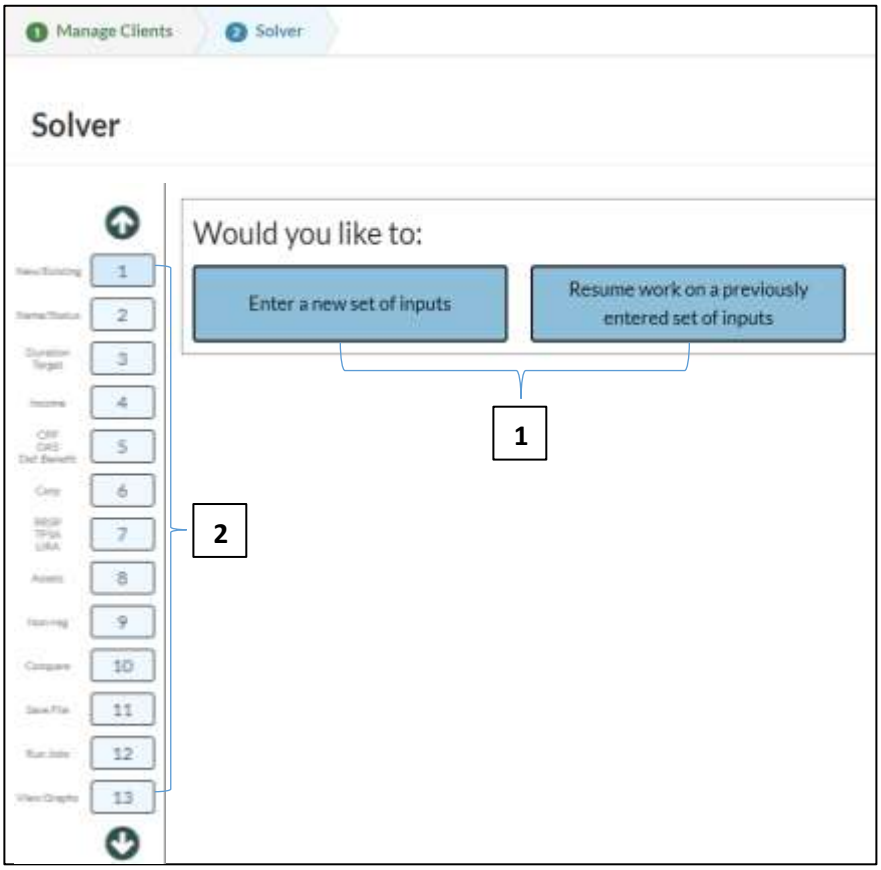
The Advanced option is complicated and recommended only for professional use.

STEP 1. New/Existing

1. When starting on a new client (or inputting a different set of variables for an exiting client to compare analysis) click on Enter a new set of inputs. If you have already entered basic financial information about this client, click on Resume work.

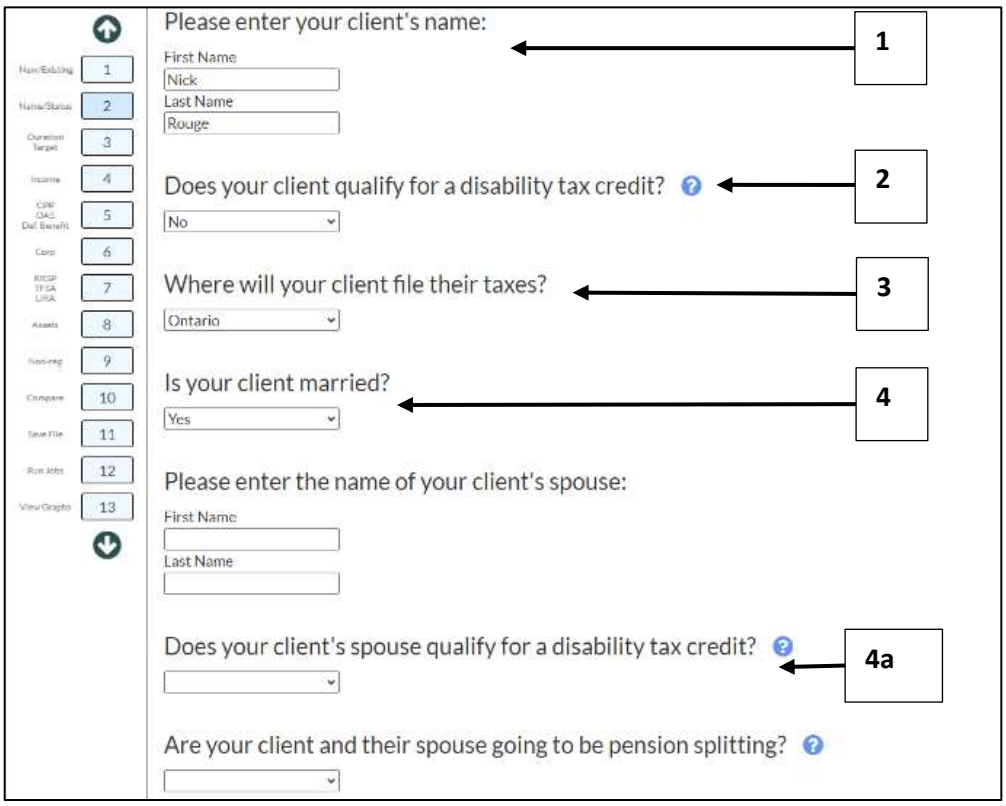
   NOTE: You may only resume a previous client's work after initial inputs have been saved at **Step 11**.

2. On the left of the screen you will find a link to each step of creating an optimized retirement decumulation plan. If any necessary information is missing, the software will not allow you to continue to the next step and will highlight the missing fields that require an input. Once you have already completed all necessary fields on a step, you can jump between steps.



STEP 2. Name/Status

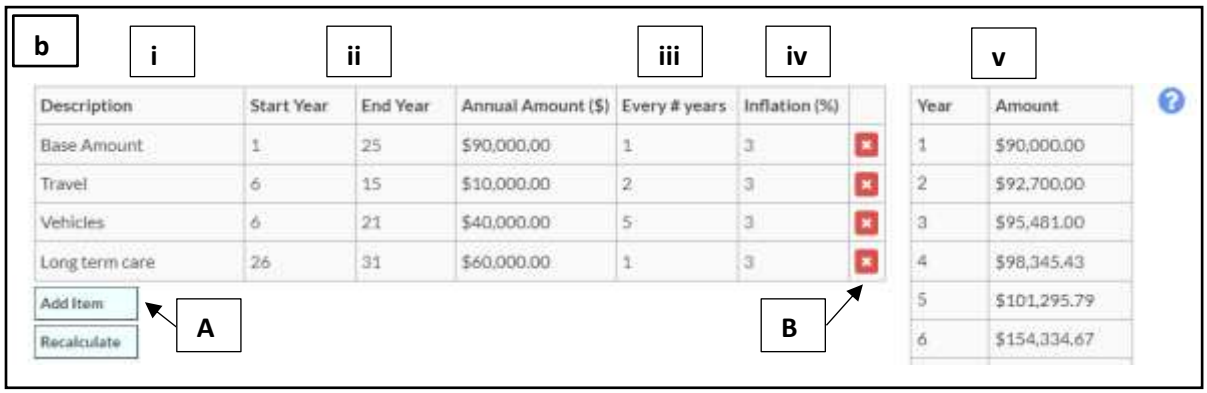
1. Re-enter the client's name.
2. The Disability Tax Credit (DTC) is a tax credit available to Canadians with specific disabilities. For details, see the CRA website linked here.
3. Select the province where the client will file their taxes.
4. Marital Status
    a. If yes, enter the spouse's name, if the spouse qualifies for disability tax credit and whether the client and spouse are pension splitting.
        i. Pension splitting can substantially lower the overall tax burden on a couple with different RRSP and other pension account values. For details, visit the CRA website.



STEP 3. Duration Target

1. Enter the client's (and spouse's) age.
2. Enter the number of years that the financial plan is for.

   E.g., If the client is 10 years away from retirement, and plans to retire for 30 years, enter 40 years.
3. Enter whether the client's annual expenditure will change at different stages of retirement.
   a. If the client will spend one amount every year (adjusted for inflation) regardless of age or phase, select 'No'.
      i. Enter the annual amount the client plans to spend (after taxes).
      ii. Enter the expected inflation rate as a percentage. The FDSC recommends using 2.5 % for an expected inflation rate. Historically, average inflation over 30 years has been <3%.
   b. If annual expenditure is expected to change over the course of the financial plan, select 'Yes', you will be asked to enter the client(s) income needs in each phase of retirement in the table that appears. You can add (A) and remove (B) fields as needed.
      i. Description: Expense Items including a Base Amount - the expected amount required to live on every year (after taxes) including day-to-day expenses such as bills, taxes, insurance, food, repairs, hobbies etc. Additional expenses at different stages of the financial plan include travel, vehicles, and long-term care homes.
      ii. Start Year & End Year: The first and last year of the expense in relation to the current year. E.g., If the client will retire in 5 years time, and wants to travel for the first 10 years of their retirement: Start Year = 6 and End Year = 15.
      iii. Every # years: The number of years between purchases. E.g., if the client plans a cruise every second year: every # years = 2.
      iv. Inflation (%): Expected inflation rate. The FDSC recommends using 2.5 % for an expected inflation rate. Historically, average inflation over 30 years has been <3%.
      v. A table appears on the far right summarizing the income requirements by year. The table will automatically update when any inputs are edited within the table or on the screen (including how many years the client would like to stay retired).



4. Enter the client's taxable income in the last year before retirement.

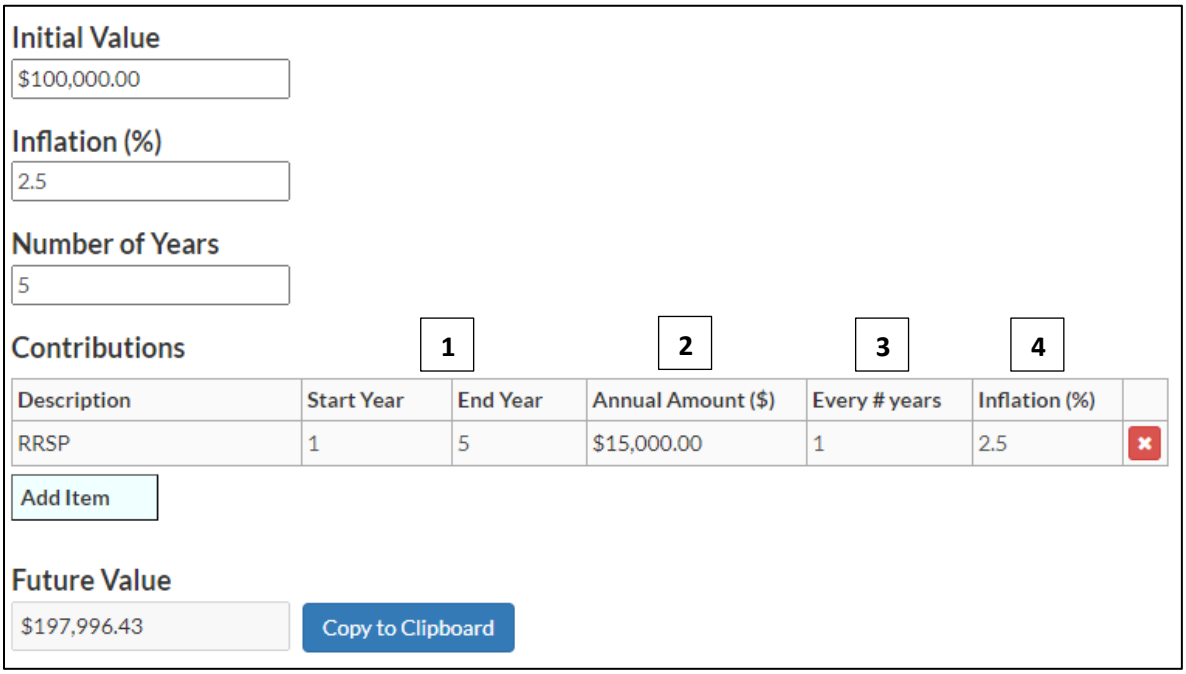
FV Calculator

The Future Value Calculator is provided as a convenience tool to assist in assigning a future value to a present dollar amount based on the inflation rate you specify, and the number of years projected. The value is calculated for the end of that year. It is present as a button in the top right corner of the screen on **Steps 3-9** if needed to calculate and fill out future values within those Steps.

Contributions Table (**Step 7**):

1. Start Year: The start of future contributions into the account relative to this year (year 1). I.e. if you're going to contribute starting next year, start year = 2
2. End Year: Final year of contributions relative to this year (year 1). I.e. if you're going to stop contributing in 4 years from now, end year = 5
3. Annual Amount ($): The amount of money put into the investment per year.
4. Every # years: The number of years between contributions.
5. Inflation (%): Expected annual percent increase in inflation.

E.g. An RRSP with an initial value of 100 000 with contributions of 15 000 provided every year for 5 years.



STEP 4. Income

1. Apart from a client's initial salary prior to retirement, clients may earn additional income (taxable and non-taxable) after retirement from consulting, speaking engagements, rental income, casual employment, etc.

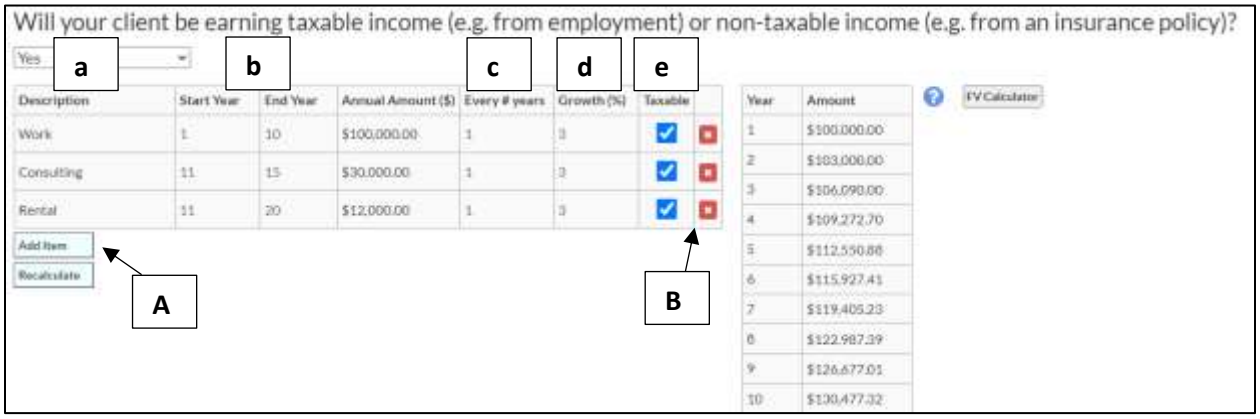
2. If 'Yes', a table will appear with fields to enter. Fields can be added (A), deleted (B) or edited directly on clicking within the respective box.

   a. Description of additional income.

   b. Start Year & End Year: The first and last year of the income in relation to the current year. E.g., if the client is retired and plans to earn rental income for the first 5 years of retirement: Start Year = 1 and End Year = 5.
   c. Every # years: The number of years between additional income. E.g., if the client expects to gain additional income from speaking engagements every second year: every # years = 2.
   d. Growth (%): An input can account for inflation or other growth factors.

   e. Taxable: Check off if the additional income is taxable or not.

2. If the client has a spouse earning additional income, a separate table will appear and will require inputs with the same fields as 7.1.a-7.1.c



E.g. The client will retire in ten years' time, so they enter their current job for the first 10 years of the financial plan. Once retired, they expect to earn additional income through consulting (for 5 years into retirement: Start year = 11, End Year = 15) and a rental property (for 10 years of their retirement Start Year = 11, End Year = 20).

STEP 5. CPP, OAS, and Defined Benefit Pensions

1. Most clients are eligible for CPP, and most financial advisors will have an estimate of the amount. Note that the amount changes by government fiat. If the client has native status or is a recent immigrant, they may not be eligible.

    a. The Government of Canada has a website with a CPP calculator.

2. Enter if the client is already receiving CPP

    a. If 'Yes, enter the total amount of CPP they received in the first year of the financial plan (year 1).

    b. If 'No':

        i. Enter the age at which the client would like to begin receiving CPP.

    *Before running the analysis (**Step 12)** you have the option to 'optimize' (use the software to determine the best age to start CPP). Prior to running this stage, you must enter your preferred age in this field, which can be used in the analysis, or the program can determine the optimal age.*

        ii. Enter the annual expected CPP amount the client is eligible to receive at 65 years of age.

3. Enter if the client is receiving OAS

    a. If 'Yes', enter the age they started recieving OAS.

    b. If 'No, enter the age at which the client would like to begin receiving OAS.

    *Before running the analysis (**Step 12)** you have the option to 'optimize' (use the software to determine the best age to start OAS). Prior to running this stage, you must enter your preferred age in this field, which can be used in the analysis, or the program can determine the optimal age.*

4. Enter if the client is eligible for full OAS. If the client's working life was in Canada, they are likely eligible for full OAS. Alternatively, you can select 'no' and specify the number of years the client has lived in Canada. Clients must have lived in Canada for a minimum of 10 years after the age of 18 to apply.

    a. For further details about eligibility, visit the Government of Canada website

5. If the client has a Defined Benefit Pension specify whether the pension income varies over time.
    a. If the pension varies, a table will appear:
        i. Enter the name of the different pension income(s) the client expects to have throughout their retirement.
        ii. Start Year & End Year: The first and last year of the pension income in relation to the current year (year 1). If the income begins this year and ends in 10 years, input 1 and 10 respectively.
        iii. Annual Amount: the annual amount of pension income in the first year of the financial plan regardless of the Start Year the pension will be received. In order to calculate the future value of the pension use the FV Calculator**.**
        iv. Inflation: the annual % increase.
    b. If the pension income does not vary, you will be asked to enter the **annual** amount received and whether the pension is indexed to inflation. If it is indexed to inflation you must enter the annual % growth each year.
6. If the client has a spouse, enter the information for the spouse (5.1 – 5.5).

STEP 6. Corporate Accounts

If the client or their spouse has a corporate account generating income, first enter the following fields:

1. The client's ownership stake as a percentage
2. The spouse's ownership stake as a percentage
3. Whether Tax on Split Income applies. TOSI (Tax on Split Income) applies the highest marginal tax rate to applicable dividends in order to discourage income sprinkling. To determine if it applies, you can use the following Flow Chart at: Income Sprinkling Flowchart.

Then select if the client or their spouse has equities or assets in their corporate account. For each owned you must also enter the fields in the table below separately:

1. Canadian equities
2. Non-Canadian equities (USA, Europe, Asia etc.)
3. Fixed-Income Assets (Bonds, GICs etc.)

NOTE: All fields must be entered, if there is no entry for a certain field put a value of zero (0).

Dollar value	The value of equity or assets in the corporate account
Dollar value of the account's unrealized capital gains	The current value minus the adjusted cost basis
Growth rate (%)	Expected annual appreciation, where growth excludes other distributions
Dividend yield (%)	Expected annual dividend yield
Distributed Capital Gain (%)	From the fund to the account, and not from buying or selling the fund
Return of Capital Distribution	Payment made to investors that returns part of their original investment, rather than distributing profits or income earned by the investment.

a. For Canadian equities, you must also enter the current value in the Eligible Refundable Dividend Tax On Hand account. This is the refundable taxes paid on eligible Canadian dividends.
    i. Enter a 0 if the value is unknown
b. For Fixed-Income Assets you must also enter the interest rate as a percentage.

4. Fill out the following fields for the corporate account:

ACTIVE INCOME	Is the corporation still earning an active business income	Select 'yes' or 'no'
If 'YES'	Pre-tax annual business profit	If the corporation is still operating, the Annual Net Income for Business.
	Expected annual growth rate of the corporation's active business income?	The increase in profits year by year as a percent
	How many years will this corporation continue to generate active business income?	Enter the number of years from the current year (year 1) that the corporation will continue to generate active investment income
PASSIVE INCOME	Is the corporation earning other passive income	I.e., Rental income from building owned by the corporation
If 'YES'	Annual dollar value of other investment income earned by the corporation?	Enter the dollar amount
	What is the annual percentage increase of other income earned by the corporation?	The growth rate on the other income earned by the corporation expressed as a percentage
	How many additional years will the corporate account earn other income?	Enter the number of years from the current year (year 1) that the corporation will continue to generate other investment income
CAPITAL GAINS	What percentage of the portfolio will be rebalanced on an annual basis?	Percentage of the account that will be bought and sold on an annual basis (realizing capital gains)
LOAN	Did your client loan money to the corporation?	Shareholder loans can be paid back tax-free
NERDTOH	Non-Eligible Refundable Dividend Tax On Hand account	Notional account that increases in value from interest income and non-eligible dividends flowing into the Corp account. If you don't know the value, enter 0. The software will calculate it going forward
GRIP	General Rate Income Pool	Accumulated income of a Canadian-controlled private corporation (CCPC) that has been subject to taxation at the general corporate tax rate, and that has not been subject to preferential or special tax treatment
CAPITAL ACCOUNT	What is the current balance of the capital dividend account?	A notional (non-cash) account tracking the corporations' ability to pay capital dividends. Increases with realizing capital gains. If you do not know enter 0 and it will be calculated going forward

	What is the minimum dollar value of capital dividend distribution?	The minimum threshold set due to CDA cost
RATIO	Will the corporation maintain the same ratio of Canadian Equities, non-Canadian equities, and fixed-income assets?	If select 'No' the software will determine the most tax efficient assets to hold in the analysis (Step 12)
LIFE INS.	Life Insurance	Is the client going to be paying for a life insurance policy out of their corporate account?
	Annual Premium	Enter the annual premium paid for the Life Insurance
	Payout at Death	What is the payout at death?
	Exclude from analysis	If it is not meant to be used for retirement but simply a part of the estate at the end of retirement, click 'Yes'
IPP	IPP	Does the client have an Individual Pension Plan (IPP)?
	Annual Amount	Total annual amount of the IPP
	Growth Rate(%)	At what rate is the IPP expected to grow?
	Actuarial Residual Amount	What is the residual amount at the end of retirement?

STEP 7. RRSP, TFSA, and LIRA

1. If you enter yes for any of these accounts; RRSP, TFSA, or LIRA, you will be asked to enter:
    a. The value of the account.
    b. The expected rate of return throughout retirement as a percentage of the value of the respective account.
        i. If you entered in an inflationary factor of 3% on expenses in the previous screens, and you expected that the RRSP, LIRA, and TFSA would do 2% better than inflation throughout retirement, you would enter a 5%
    c. Whether you would like to exclude the account from the analysis. If excluded, it will simply be part of the net estate value at the end of retirement.
2. For TFSA accounts, the client may have additional contribution room. If so, this will be considered in the optimization algorithm, and the algorithm will use that space to calculate, when and if, which funds should be transferred into the TFSA.
3. For LIRA accounts, you will additionally input whether the client has started withdrawing from the LIRA account.
    a. If 'No', enter the client's age at which they would like to begin withdrawing.

    Similar to CPP and OAS, the software can calculate the optimal age to begin withdrawals at **Step 12,** or use the age specified at this stage.

STEP 8. Assets

1. If the client and/or spouse has assets, select 'Add Asset' and a table will appear with the following fields:

    a. Description: Enter the value of any extraordinary assets that the client has or plans to have. E.g., Real Estate would be a typical appreciating asset that may or may not be sold.

    b. Do you already own this asset?: Select 'Yes' or 'No' in the dropdown menu to specify whether the asset is currently owned.

    c. Acquisition year: If the client does not already own the asset, specify the number of years in the future from the current year that the asset will be acquired. For example, if they will purchase a second property in 5 years' time, enter a 6.

    d. Value: Enter the value of the asset (if the client already owns this asset), or the expected cost at the time of future purchase. Note that the initial cost of newly acquired assets will automatically be paid for from the monetary accounts (RRSP's, TFSA's, etc.) in the most tax-efficient manner. The spending target (target income) in the acquisition year will not be modified.

        A. To assist in determining the cost of the asset at the time of future purchase, use the FV Calculator located at the right-hand corner of the screen.

    e. Annual Growth Rate: Assets appreciate in value, estimate the annual growth rate while considering the inflation rate specified in your expenses. A depreciating (negative) annual growth rate may also be entered.

    f. Will be liquidated?: Select whether the client plans to sell the asset.

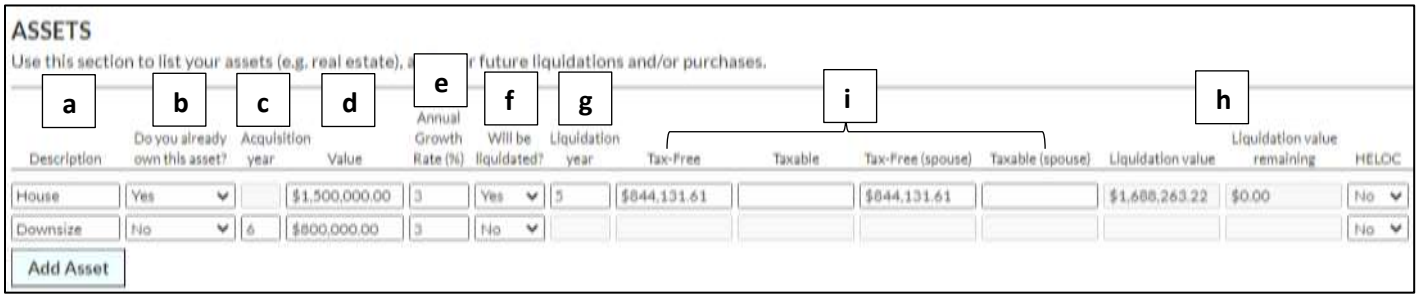
    g. Liquidation year: if the client intends to sell the asset select "Yes" and enter the number of years in the future from the current year that they wish to sell. E.g., if the asset will be sold immediately, the liquidation year is 1.

    h. Liquidation Value and Liquidation Value Remaining: These fields will be automatically filled out based on the initial value of the asset, the growth rate, the number of years until it is liquidated and the amount that is tax-free. For assets that will not be liquidated, these two fields are irrelevant and will remain blank.

        A. "Liquidation value remaining" is automatically calculated to help you distribute the liquidation value between the Tax-Free and Taxable amounts. If you fill out these amounts for an asset, and then change something that

affects the liquidation value, the amounts will be proportionately updated automatically such that their sum matches the new liquidation value. This will only occur if all fields are filled, even if with a '0'.

i. Tax-free and Taxable: Enter the total value of the asset that is subject to tax and the value that is tax-free. They must add up to the total liquidation value of the asset.



HELOC:

2. A HELOC (Home Equity Line of Credit) is a reverse mortgage that diminishes the value of an asset. Specify if this asset has or will have a HELOC applied. If yes, specify:
    a. Start Year: the year the HELOC will be first obtained in the future from the current year, or, if in the past, enter year 1.
    b. HELOC Interest (%): Interest rate on the loan.
    c. Initial Amount: The initial amount of the loan.
    d. Annual Amount: annual amount received from the HELOC.
    e. Growth (%): Growth in the amount of money receiving out of the HELOC.
        A. E.g. 10 000 a year for the next ten years growing with inflation.
    f. Amount Owed: Amount of the asset that is not part of the estate value.

STEP 9. Non-Registered

Non-registered accounts are taxable investment accounts that are not registered with the federal government. They are liquid and have no contribution limits.

These accounts receive different tax treatment from registered accounts, so more information is required, and some predictions need to be made regarding future returns. The non-registered account's initial cost basis is required to remove the tax-free portion of any capital gains from tax considerations. The initial cost basis is the amount that you initially paid or invested.

Non-registered accounts are split between Canadian and non-Canadian equities as well as Fixed income assets as different taxation will apply. If the client has any of these in their non-registered account, you must fill out the following for each of:

1. Canadian equities
2. Non-Canadian equities
    a. US, Europe, Asia etc.
3. Fixed-income Assets
    a. Bonds, GICs etc.
    b. Fixed-income assets also require the input of the interest rate on the account's fixed asset.

Dollar value	The current value of the equity/asset
Initial Adjusted Cost Basis	The initial adjusted cost basis is the adjusted cost basis right now. i.e. a sum of all of the money you've invested including dividend reinvestments if applicable
Growth rate (%)	Expected annual appreciation. This is the return excluding dividends and other distributions.
Dividend yield (%)	Expected annual dividend yield.
Distributed Capital Gains (%)	Distributed gains are funds received when a stock sells a capital asset, for example, when an REIT sells a property. This refers to capital gains paid out by a mutual fund, ETF, or other investment fund, and taxed in the year they are received, even if you did not sell any shares.
Return of Capital Distribution	This is when an investment (like a mutual fund, ETF, or trust) returns part of the original investment to the client, instead of paying income or capital gains.

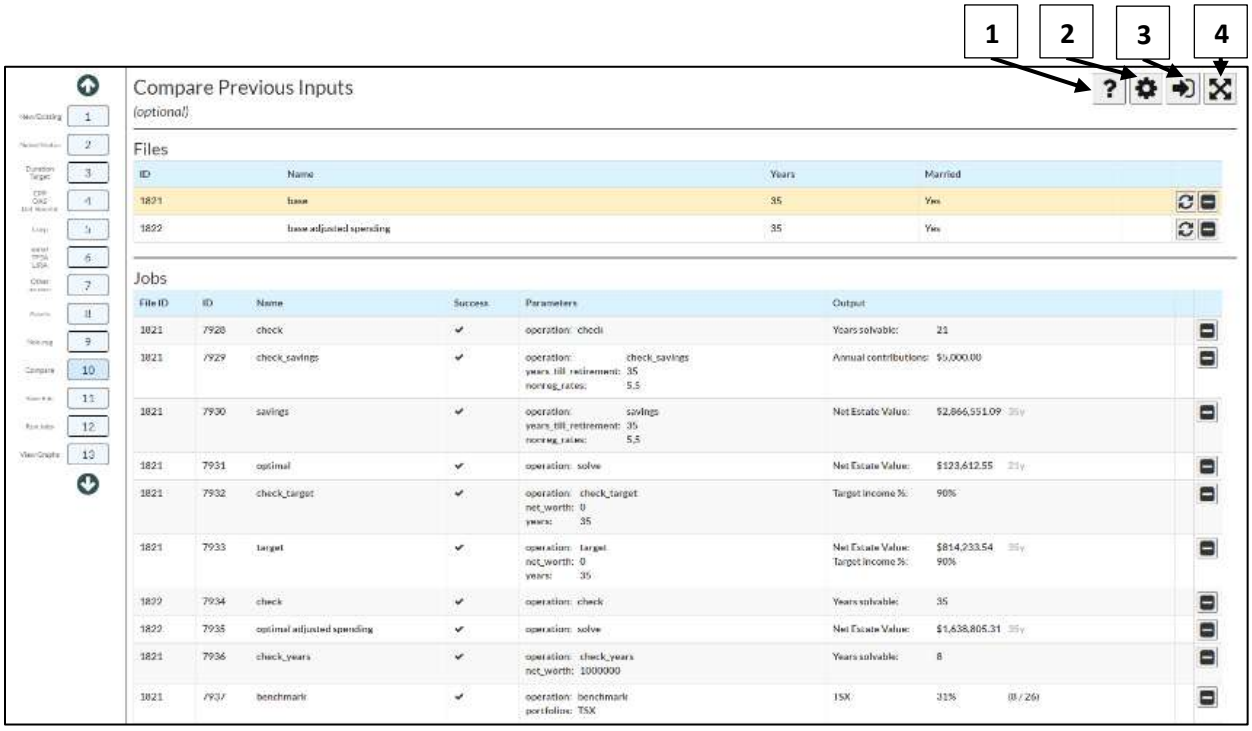
4. Enter the percentage of the portfolio that will be rebalanced on an annual basis.
5. Select whether the account will maintain the same ratio of Canadian Equities, non-Canadian equities, and fixed-income assets.
    a. If select 'No' the software will determine the most tax efficient assets to hold in the analysis (**Step 12**).
6. Enter the annual advisory fee on the account as a percentage.
    a. This is the fee paid to the financial advisor to manage the non-registered account. All of the above distributions are net of fees.
7. Enter whether the client took out a loan for the purposes of investing.
    a. This is a tax deductible margin loan. If 'yes' enter the dollar value of the annual loan payment and how many years from the current year will the loan be repaid.
8. Select whether you would like to exclude the non-registered account from analysis.
    a. If the account is excluded, the value of the non-registered account remains as part of the net estate value and this account is not used in the withdrawals. This account does not become part of the client's target income.
9. If the client's spouse also has a non-registered account, fill out 9.1-9.11 for their account.

STEP 10. Compare

If this is your first set of inputs into the program, continue to **Step 11**.

If you have saved multiple files with varying inputs, it is possible to compare the various files to select which inputs to analyse. The current set of inputs need not be saved to do so.

Note that you do not need to have run any analysis on the files before comparing inputs. Or, once you have run analysis (**Step 12**) on multiple files, you may want to compare the outputs under the 'Jobs' heading.

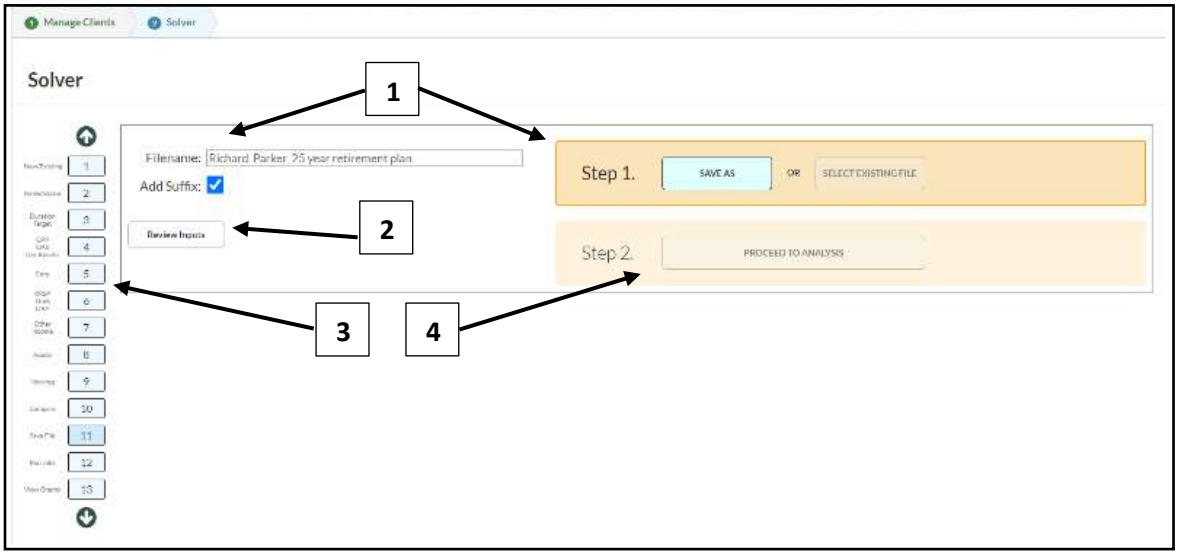


1. Help: A pop-up window will appear describing the various buttons and their functions in this step.
2. Table settings: Select what is shown and not shown under the headings under "Files" and "Jobs".
3. Load File: allows you to select another file and scenario for this client.
4. Toggle: Full Screen or compressed screen.

STEP 11. Save As

1. It is recommended that you enter a filename before clicking Save As. This name will be useful if running multiple jobs on different inputs to answer various questions and make comparisons between plans.
2. Before or after saving the file you can quickly review inputs (all the information entered in **Steps 1 - 11**).
3. To change inputs, close the Review Inputs window (by clicking on the background screen) and click on the appropriate **Step** on the numbered buttons on the left-hand side. Remember to save any changes.
    1. If inputs are entered exactly as in a previous file, click on Select Existing File, as the program will not allow two saved files with the exact same parameters for a client.
4. After saving the file click on 'Proceed to Analysis' to explore outputs.

NOTE: You will not be able to click on the analysis until you have saved your file. Once you click on this button you will automatically be taken to **Step 12**.



Part 2: Analysis and Optimization

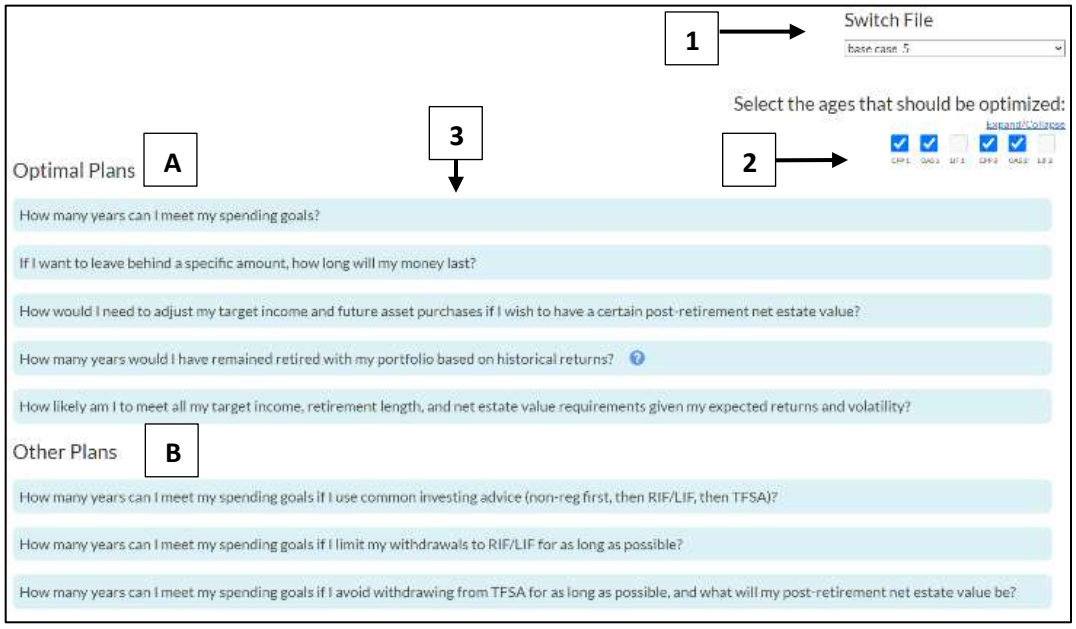
STEP 12. Run Jobs

To generate and analyze financial plans there is the option to run 'Optimal Plans' (A) or Rules of Thumb and common strategies in the 'Other Plans' (B) section.

1. If there is more than one file saved, select which set of inputs are to be analysed by clicking on the drop-down menu under 'Switch File'.
    a. Once a few retirement scenarios have been run, you may wish to change certain parameters in previous Steps and save a new file, which can then be loaded by selecting it in the dropdown menu here to be analyzed.
    b. You can run specific questions on more than one set of inputs to compare in Step 13.
2. Specify which ages to optimize: Check the corresponding box for the client (1) and spouse (2) to determine the optimal age to receive CPP, OAS or LIF (LIRA). If boxes are **unchecked**, the ages entered in the inputs (**Step 5** and **Step 7**) will be used.

    NOTE: clicking on 'Expand/Collapse' will show you a definition of each of these boxes regarding the client and their spouse.

3. To begin the analysis, click on a question that you would like answered.



The manual will begin with the first 3 questions under **Optimal Plans** as they answer most clients' questions and provide similar outputs in Step 13: View Graphs, followed by **Question 4:** Benchmarks with relevant graphs, and **Question 5:** Monte Carlo and relevant graphs.

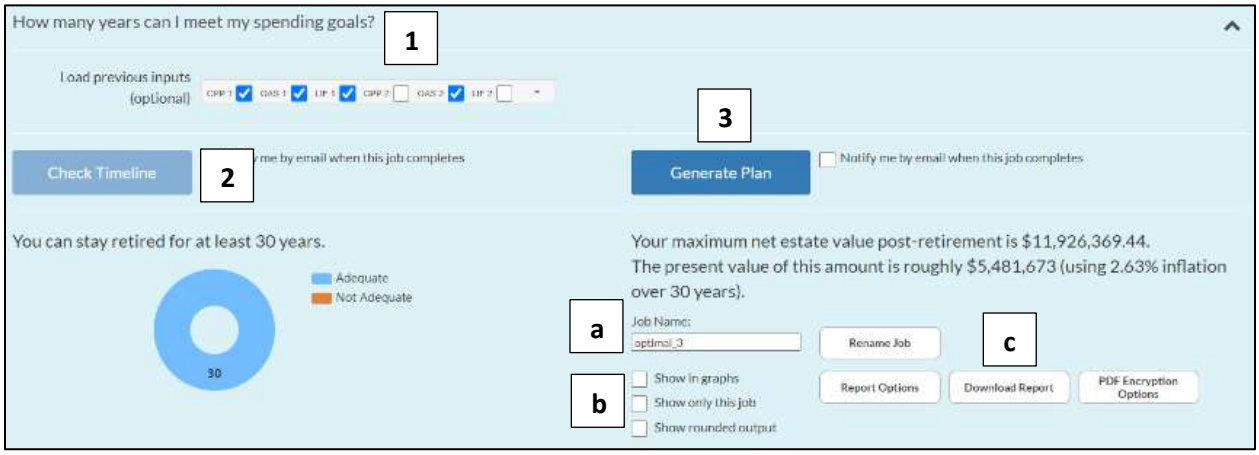
Optimal Plans: Questions 1 -3

Question 1

How many years can I meet my spending goals?

Will funds last through to the end of retirement (based on spending goals defined in the input section)?

1. Click on the question to expand the window
    i. Load previous inputs: optional, select if there are previous combinations of ages that you would like to be optimized in the dropdown bar.
2. Click on the Check Timeline button to run this particular analysis (job), and determine whether the retirement plan is viable.
    a. If funds are insufficient, it will tell us how many years the income requirements are met and for how many years the funds do not meet income targets. Scroll back through **Steps 1 – 11** to adjust inputs or go to **Question 3**.
3. By clicking the Generate Plan button, the Solver creates the decumulation plan that best meets their objective spending goals based on stated assets. It generally takes a few minutes. Once the Plan is complete, the reports can be generated.



a. The Job Name will save as 'optimal' by default, be sure to rename the job if you wish to compare various inputs and their respective outputs (jobs), and click the 'Rename Job' button.
b. Click on 'Show in graphs' for each question to view and compare in **Step 13**. Should you have run analysis on multiple questions and wish to only view the graphs of one question, **first** select 'Show in graphs' and then select 'Show only this job' for the respective question.
   Show rounded output: If unchecked the analysis will provide numbers to the last dollar, which may not be practical when creating a retirement plan. When checked, proposed withdrawals will round to the nearest 100.
c. Click on "Report Options" to see the list of details, graphs and tables that will be included in the pdf output for the client. A separate report is generated for each

question. Once the report is generated, it may be downloaded into a pdf with 'Download Report.' Encrypt the pdf with a password by selecting 'PDF Encryption Options'.

i. Client mode is for the specific client you are working with.
ii. Global mode is for all of your clients.

Once you have run the analysis of Question 1, to view graphs of the analysis move to **Step 13**. This very simple job answers 90% of clients' questions. If spending goals were not met, questions regarding spending bandwidth arise, or if there is a large estate that remains at the end of retirement, proceed to subsequent questions.

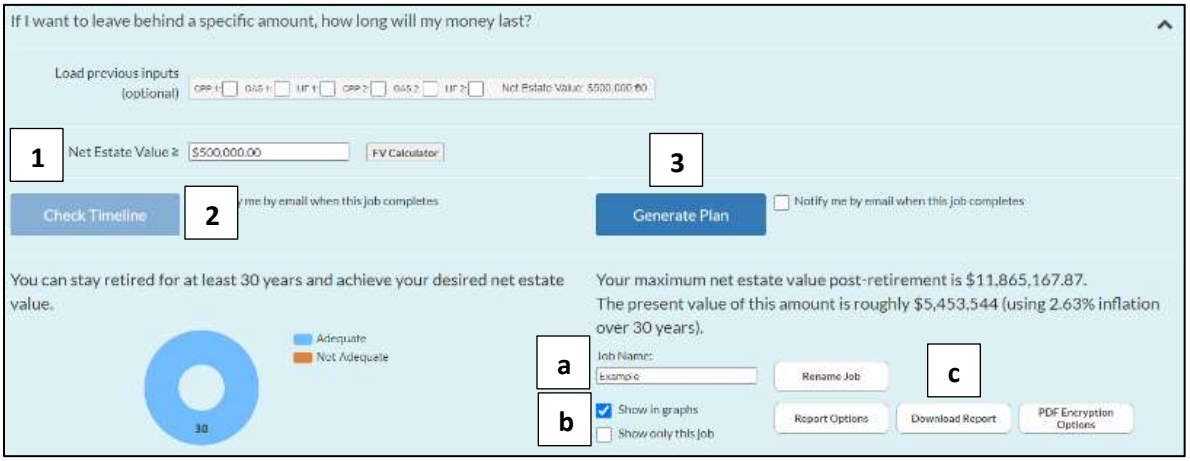
Plans from Question 1-3 can be compared in the graphs and tables at Step 13.

Question 2

If I want to leave behind a specific amount, how long will my money last?

The next tool specifically addresses the situation for clients who wish to leave a set amount of assets to beneficiaries. This looks at the current portfolio and provides a number of years the client can stay retired to leave behind a specified estate value based on inputs and how to adjust target income to leave behind a certain amount.

1. Enter the amount that the client would like to leave behind. Use the FV Calculator to assist in projected values.
2. Click the Check Timeline button.
3. If there are adequate funds to meet spending goals for the full years of retirement, click the Generate Plan button to create the roadmap to the stated goal. If the Check Timeline analysis did not result in a plan for **all** years of full retirement, you may adjust parameters in the inputs or proceed to **Question 3**.
4. By clicking the Generate Plan button, the Solver creates the decumulation plan that best meets spending goals given stated assets with a specific net estate value at the end of retirement (after taxes).



a. The Job Name will save with a default name. Rename the job if you wish to compare various inputs and their respective outputs (jobs), and click the 'Rename Job' button.

b. Click on 'Show in graphs' for each question that you would like to view and compare. Should you have run analysis on multiple questions and wish to only view the graphs of one question, **first** select 'Show in graphs' and then select 'Show only this job' for the respective question.

c. Click on "Report Options" to see the list of details, graphs and tables that will be included in the pdf output for the client. A separate report is generated for each question. Once the report is generated, it may be downloaded into a pdf with 'Download Report.' Encrypt the pdf with a password by selecting 'PDF Encryption Options'.

   iii. Client mode is for the specific client you are working with.
   iv. Global mode is for all of your clients.

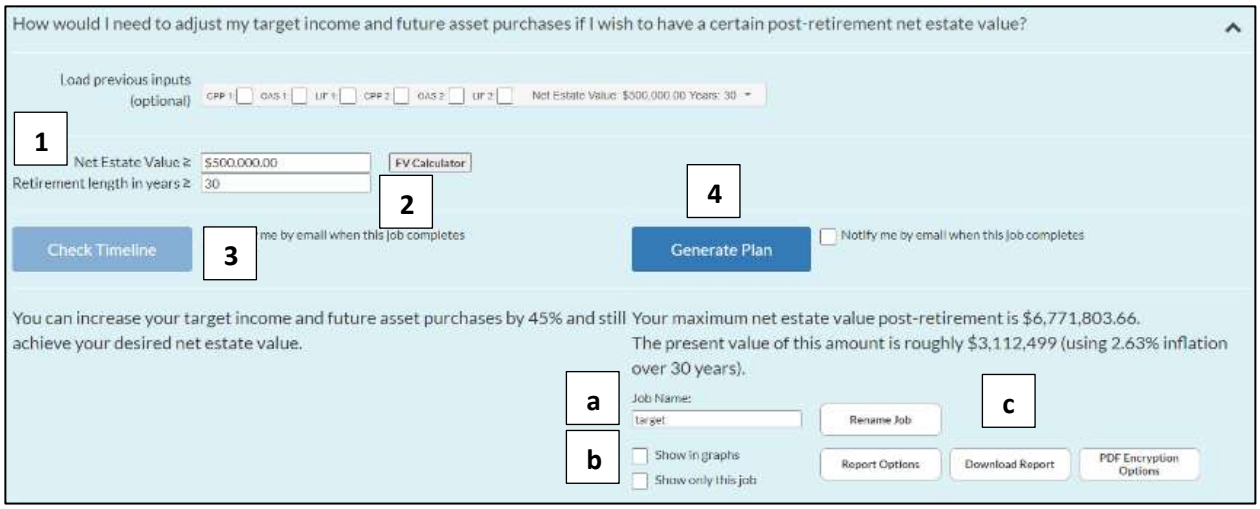
Question 3

How would I need to adjust my target income and future asset purchases for a certain post-retirement net estate value?

Or if my retirement is funded, how much latitude do I have?

If retirement goals are not achievable, this tool will calculate the required expense reduction to achieve retirement duration with a set post-retirement net worth. Reducing expenses includes changing target income and/or future asset purchases. Only a small change may be required to achieve specified goals.

1. Enter the net estate value desired at the end of retirement. If the client could not remain retired for the stated years of retirement (Question 1) and this analysis is being used to calculate spending levels to achieve stated years, **enter 0**.
2. Enter the desired period the client would like to remain retired.
3. Click Check Timeline. If the retirement plan is already successful and there is extra cash, this tool will calculate how much spending can be increased: the margin on estimated expenses.
4. Click Generate Plan.



a. The Job Name will save with a default name, be sure to rename the job if you wish to compare various inputs and their respective outputs (jobs), and click the 'Rename Job' button.
b. Click on 'Show in graphs' for each question that you would like to view and compare. Should you have run analysis on multiple questions and wish to only view the graphs of one question, **first** select 'Show in graphs' and then select 'Show only this job'.
c. Click on "Report Options" to see the list of details, graphs and tables that will be included in the pdf output for the client. A separate report is generated for each question. Once the report is generated, it may be downloaded into a pdf with 'Download Report.' Encrypt the pdf with a password by selecting 'PDF Encryption Options'.

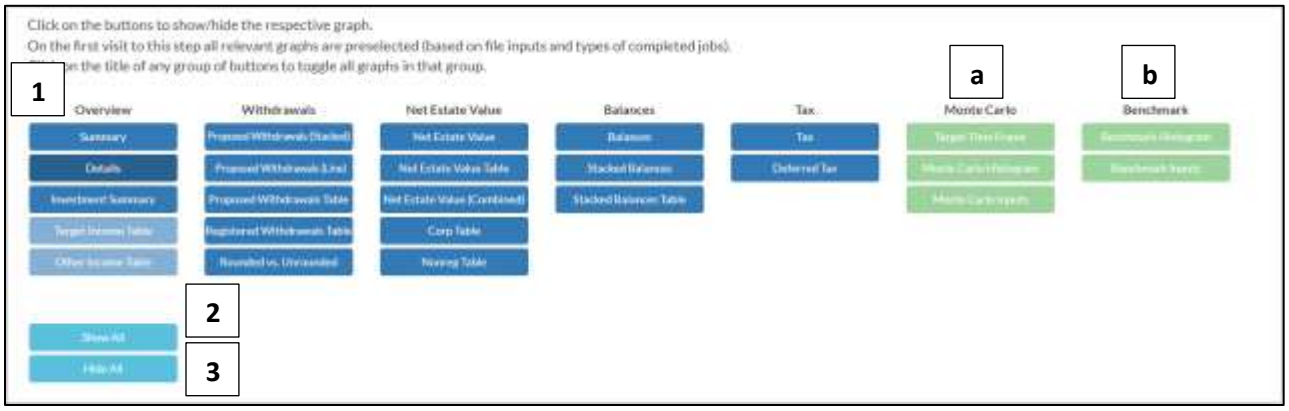
STEP 13. View Graphs

Optimal Plans Questions 1 – 3

Plans generated from Questions 1 - 3 can be compared here.

Should you wish to remove any of the Questions/plans from view, return to **Step 12** and unclick the 'Show graphs' box to automatically update the graphs for viewing in **Step 13**.

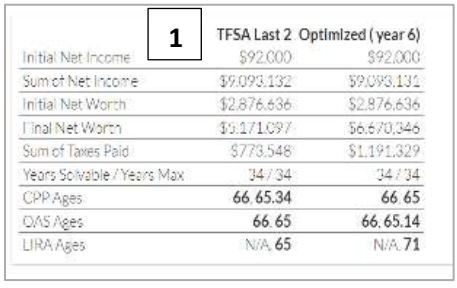
Click on the various tables and graphs that you would like to see and the box will become highlighted in orange. Click on the heading of the column to select all its subsequent graphs (1). To hide a graph, click on the highlighted box. You may show all the graphs (2) or hide all the graphs (3). Graphs will be displayed in the order they are seen in the menu.



Note: Monte Carlo (a) and Benchmark (b) analysis are for Question 54 and Question 45, respectively.

A) Overview:

1. **Summary** produces a table of the broad parameters. In this example, note the results for two jobs that were run; the first is named 'TFSA Last 2', and the second is named 'Optimized (year 6)' after the strategies used to arrive at the plans. The optimized version results in a final net worth of one million dollars more than the TFSA last strategy. The optimized version results in larger tax payments because of the greater net worth and the tax position at the end of retirement.

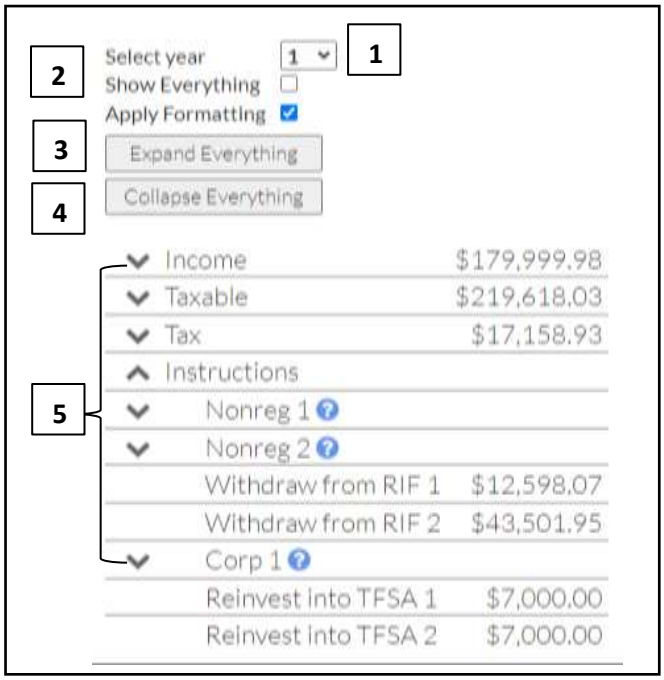


	TFSA Last 2	Optimized (year 6)
Initial Net Income	$92,000	$92,000
Sum of Net Income	$9,093,132	$9,093,131
Initial Net Worth	$2,876,636	$2,876,636
Final Net Worth	$9,171,097	$6,670,346
Sum of Taxes Paid	$773,548	$1,191,329
Years Solvable / Years Max	34 / 34	34 / 34
CPP Ages	66, 65.34	66, 65
OAS Ages	66, 65	66, 65.14
LIRA Ages	N/A, 65	N/A, 71

2. **Details:** The Details Table provides in depth information regarding the **estimation** of tax liabilities for the year selected. This software is not a tax program. These estimates are used to manage tax efficiencies for calculations of withdrawal distributions. You can view the tax efficiencies that are estimated in any given year.

Disclaimer: this software is not a tax program. The data is provided to describe how the taxes were estimated by Retirement Optimizer. This is **not** a calculation of taxes owing.

1) Select the year from now that you would like to view by clicking on the drop-down bar
2) Check 'Show Everything' box to display accounts with no changes (0.00)
3) Click the 'Expand Everything' box to view all fields
4) Click 'Collapse Everything' to hide all sub-fields.
5) Choose which headings you would like to view in more detail by manually by clicking on the arrows on the left had side of the rows, where the down arrow is collapsed and the up arrow is open for viewing in more detail.



Income: The total money available to pay expenses and taxes for the year, broken down by cash flows (withdrawals, cash from work, corporate accounts, government aid etc.) as well as inputs (reinvestments or payments, such as taxes) which are signified by a '-' symbol.

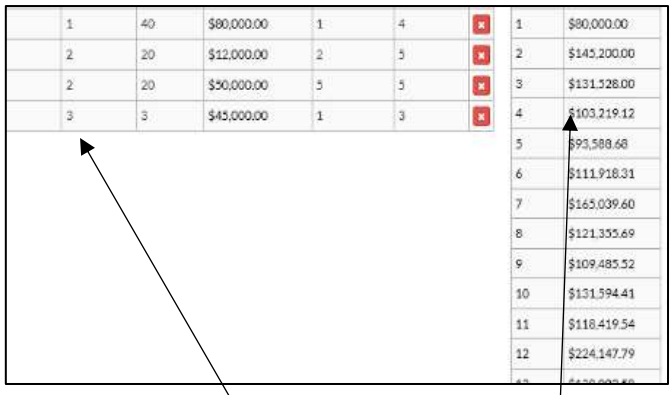
Accounts are split between the client (1) and the spouse (2). Reinvesting is signified by a minus sign '-'

Taxable: Taxable is a listing of the sources of taxable income divided between spouses (Taxable 1 and Taxable 2). Negative values ('-') signify amounts the client and spouse are receiving back from the government.

Tax: The total amount of taxes (Federal and Provincial) are estimated using the information provided and projected tax brackets. Again, these are estimates. This is not tax software. Note that faded values are inflation adjusted for the present-day value.

3. **Invest Summary:** A visual Investment Summary is provided for first (A) and final (B) year of retirement.

4. **Target Income Table:** This table contains the target income or spending level (after taxes) that is calculated for you based on the annual income/spending amounts that were specified in **Step 3**. This table is available for clients whose income needs will change through retirement. (If on **Step 3**, 'Yes' was selected).



	1	40	$80,000.00	1	4		1	$80,000.00
	2	20	$12,000.00	2	5		2	$145,200.00
	2	20	$50,000.00	5	5		3	$131,528.00
	3	3	$45,000.00	1	3		4	$103,219.12
							5	$93,588.68
							6	$111,918.31
							7	$165,039.60
							8	$121,355.69
							9	$109,485.52
							10	$131,594.41
							11	$118,419.54
							12	$224,147.79

Target Income Table (optimal)

Year	Base Amount	Travel	Vehicles	Wedding	Total
1	$80,000.00	$0.00	$0.00	$0.00	$80,000.00
2	$83,200.00	$12,000.00	$50,000.00	$0.00	$145,200.00
3	$86,528.00	$0.00	$0.00	$45,000.00	$131,528.00
4	$89,989.12	$13,230.00	$0.00	$0.00	$103,219.12
5	$93,588.68	$0.00	$0.00	$0.00	$93,588.68
6	$97,332.23	$14,586.08	$0.00	$0.00	$111,918.31
7	$101,225.52	$0.00	$63,814.08	$0.00	$165,039.60
8	$105,274.54	$16,081.15	$0.00	$0.00	$121,355.69
9	$109,485.52	$0.00	$0.00	$0.00	$109,485.52
10	$113,864.94	$17,729.47	$0.00	$0.00	$131,594.41
11	$118,419.54	$0.00	$0.00	$0.00	$118,419.54
12	$123,156.32	$19,546.74	$81,444.73	$0.00	$224,147.79
13	$128,082.58	$0.00	$0.00	$0.00	$128,082.58
14	$133,205.88	$21,550.28	$0.00	$0.00	$154,756.16

5. **Other Income Table:** If the client has identified Income (input on **Step 7**), such as pre-retirement salary, consulting income, rental from an apartment, or other sourced income during retirement, the Other Income Table will display the amounts calculated and used in the creation of the Optimal Retirement Plan.

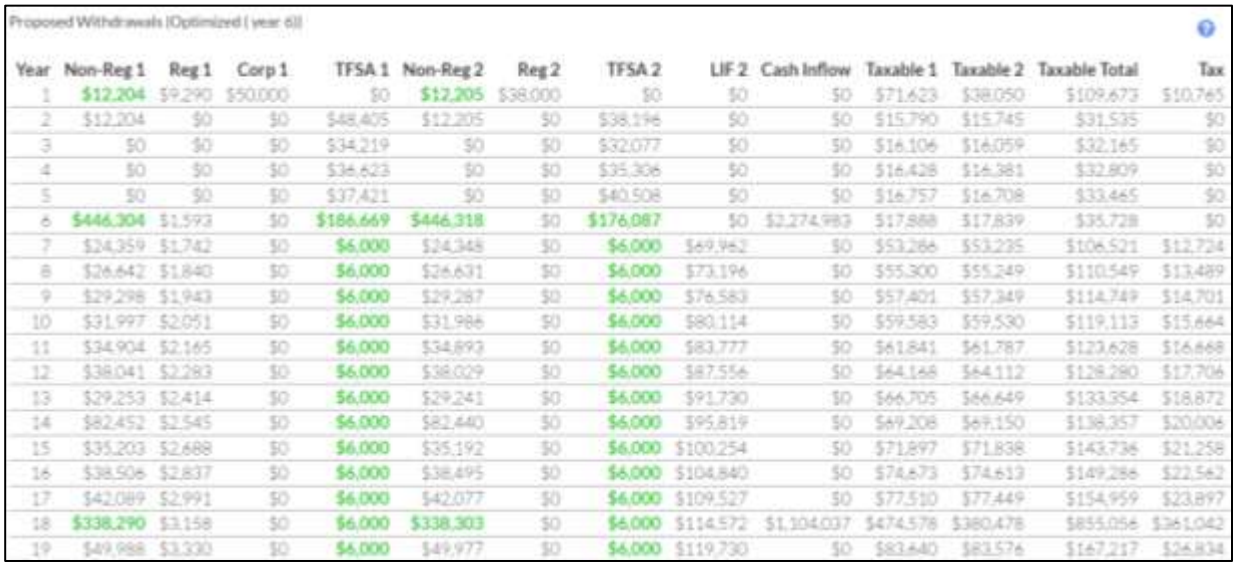
Other Income Table (optimal)

Year	Rent Main Client Taxable	Consulting Main Client Taxable	Total
1	$14,000.00	$36,000.00	$50,000.00
2	$14,210.00	$36,540.00	$50,750.00
3	$14,423.15	$37,088.10	$51,511.25
4	$14,639.50	$0.00	$14,639.50
5	$14,859.09	$0.00	$14,859.09
6	$0.00	$0.00	$0.00
7	$0.00	$0.00	$0.00
8	$0.00	$0.00	$0.00

B) Withdrawals:

1. **Proposed Withdrawals:** Provides a withdrawal scheme by account for each year. It can be viewed as a **stacked column (i)** or **line graph (ii)**.
    a. Select which accounts to view by clicking on the legend keys to show or hide an account from the graph (A). Select the time period to view by clicking the timeframe on the right-hand corner to view results for the entirety of retirement, first 5 years or first 10 years, (B) or defining a time period on the lower bar by clicking and dragging over the desired period (C).

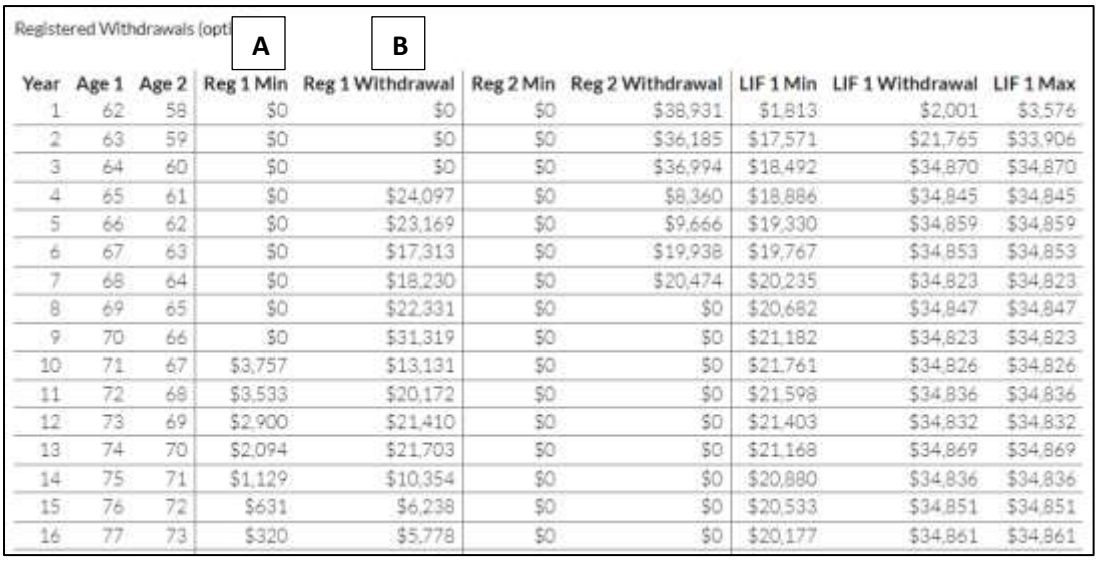
2. **Proposed Withdrawals Table:** Displays each proposed withdrawal in number format to create an unambiguous set of instructions. Re-investments are shown in green. The sale of an asset (such as a primary residence) will generate a cash inflow, which will require re-investment.



Proposed Withdrawals (Optimized | year 65)

Year	Non-Reg 1	Reg 1	Corp 1	TFSA 1	Non-Reg 2	Reg 2	TFSA 2	LIF 2	Cash Inflow	Taxable 1	Taxable 2	Taxable Total	Tax
1	$12,204	$9,290	$50,000	$0	$12,205	$38,000	$0	$0	$0	$71,623	$38,050	$109,673	$10,765
2	$12,204	$0	$0	$48,405	$12,205	$0	$38,196	$0	$0	$15,790	$15,745	$31,535	$0
3	$0	$0	$0	$34,219	$0	$0	$32,077	$0	$0	$16,106	$16,059	$32,165	$0
4	$0	$0	$0	$34,623	$0	$0	$35,306	$0	$0	$16,428	$16,381	$32,809	$0
5	$0	$0	$0	$37,421	$0	$0	$40,508	$0	$0	$16,757	$16,708	$33,465	$0
6	$446,304	$1,593	$0	$186,669	$446,318	$0	$176,087	$0	$2,274,983	$17,888	$17,839	$35,728	$0
7	$24,359	$1,742	$0	$6,000	$24,348	$0	$6,000	$69,962	$0	$53,266	$53,235	$106,521	$12,724
8	$26,642	$1,840	$0	$6,000	$26,631	$0	$6,000	$73,196	$0	$55,300	$55,249	$110,549	$13,489
9	$29,298	$1,943	$0	$6,000	$29,287	$0	$6,000	$76,583	$0	$57,401	$57,349	$114,749	$14,701
10	$31,997	$2,051	$0	$6,000	$31,986	$0	$6,000	$80,114	$0	$59,583	$59,530	$119,113	$15,664
11	$34,904	$2,165	$0	$6,000	$34,893	$0	$6,000	$83,777	$0	$61,841	$61,787	$123,628	$16,668
12	$38,041	$2,283	$0	$6,000	$38,029	$0	$6,000	$87,556	$0	$64,168	$64,112	$128,280	$17,706
13	$29,253	$2,414	$0	$6,000	$29,241	$0	$6,000	$91,730	$0	$66,705	$66,649	$133,354	$18,872
14	$82,452	$2,545	$0	$6,000	$82,440	$0	$6,000	$95,819	$0	$69,208	$69,150	$138,357	$20,006
15	$35,203	$2,688	$0	$6,000	$35,192	$0	$6,000	$100,254	$0	$71,897	$71,838	$143,736	$21,258
16	$38,506	$2,837	$0	$6,000	$38,495	$0	$6,000	$104,840	$0	$74,673	$74,613	$149,286	$22,562
17	$42,089	$2,991	$0	$6,000	$42,077	$0	$6,000	$109,527	$0	$77,510	$77,449	$154,959	$23,897
18	$338,290	$3,158	$0	$6,000	$338,303	$0	$6,000	$114,572	$1,104,037	$474,578	$380,478	$855,056	$261,042
19	$49,988	$3,330	$0	$6,000	$49,977	$0	$6,000	$119,730	$0	$83,640	$83,576	$167,217	$24,834

3. **Registered Withdrawals Table:** Since registered withdrawals have significant tax implications, the Registered Withdrawals Table is a most important guide for client spending. The table reports the minimum withdrawal amount as specified by the CRA (A) and the recommended withdrawals to maximize tax efficiency for each year (B). Reg1 refers to the client and Reg2 refers to the spouse.



Registered Withdrawals (opti

A B

Year	Age 1	Age 2	Reg 1 Min	Reg 1 Withdrawal	Reg 2 Min	Reg 2 Withdrawal	LIF 1 Min	LIF 1 Withdrawal	LIF 1 Max
1	62	58	$0	$0	$0	$38,931	$1,813	$2,001	$3,576
2	63	59	$0	$0	$0	$36,185	$17,571	$21,765	$33,906
3	64	60	$0	$0	$0	$36,994	$18,492	$34,870	$34,870
4	65	61	$0	$24,097	$0	$8,360	$18,886	$34,845	$34,845
5	66	62	$0	$23,169	$0	$9,666	$19,330	$34,859	$34,859
6	67	63	$0	$17,313	$0	$19,938	$19,767	$34,853	$34,853
7	68	64	$0	$18,230	$0	$20,474	$20,235	$34,823	$34,823
8	69	65	$0	$22,331	$0	$0	$20,682	$34,847	$34,847
9	70	66	$0	$31,319	$0	$0	$21,182	$34,823	$34,823
10	71	67	$3,757	$13,131	$0	$0	$21,761	$34,826	$34,826
11	72	68	$3,533	$20,172	$0	$0	$21,598	$34,836	$34,836
12	73	69	$2,900	$21,410	$0	$0	$21,403	$34,832	$34,832
13	74	70	$2,094	$21,703	$0	$0	$21,168	$34,869	$34,869
14	75	71	$1,129	$10,354	$0	$0	$20,880	$34,836	$34,836
15	76	72	$631	$6,238	$0	$0	$20,533	$34,851	$34,851
16	77	73	$320	$5,778	$0	$0	$20,177	$34,861	$34,861

4. **Rounded vs. Unrounded:** By specifying 'Show Rounded Output' in Question 1, the withdrawal amounts will be presented in rounded numbers (A). There is a small differential between the absolute 'best' withdrawal amounts and the actuals likely to be withdrawn (rounded values). The Rounded vs Unrounded graph reports the annual difference in Net Estate Value and Income between the two plans so impact can be assessed (B).

Registered Withdrawals (optimal) **A**

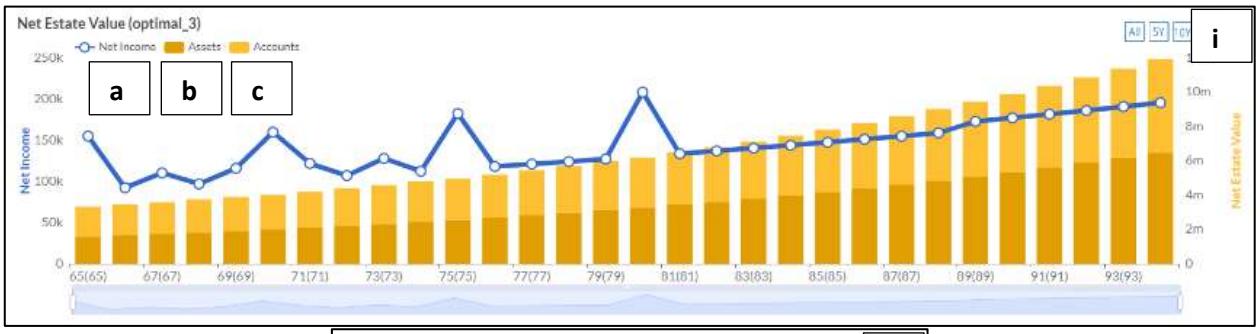
Year	Age 1	Age 2	Reg 1 Min	Reg 1 Withdrawal	Reg 2 Min	Reg 2 Withdrawal	LIF 1 Min	LIF 1 Withdrawal	LIF 1 Max
1	62	58	$0	$0	$0	$39,000	$1,813	$2,000	$3,576
2	63	59	$0	$0	$0	$36,000	$17,571	$22,000	$33,906
3	64	60	$0	$0	$0	$37,000	$18,482	$34,000	$34,952
4	65	61	$0	$24,000	$0	$8,000	$18,913	$34,000	$34,894
5	66	62	$0	$23,000	$0	$10,000	$19,397	$34,000	$34,979
6	67	63	$0	$17,000	$0	$20,000	$19,880	$35,000	$35,053
7	68	64	$0	$18,000	$0	$20,000	$20,354	$35,000	$35,026
8	69	65	$0	$22,000	$0	$0	$20,805	$35,000	$35,053
9	70	66	$0	$31,000	$0	$0	$21,310	$35,000	$35,034
10	71	67	$3,633	$13,000	$0	$0	$21,895	$35,000	$35,040
11	72	68	$3,623	$20,000	$0	$0	$21,732	$35,000	$35,054
12	73	69	$3,008	$21,000	$0	$0	$21,539	$35,000	$35,055
13	74	70	$2,237	$22,000	$0	$0	$21,306	$35,000	$35,097
14	75	71	$1,272	$10,000	$48	$48	$21,023	$35,000	$35,074
15	76	72	$807	$6,000	$49	$49	$20,678	$35,000	$35,097
16	77	73	$524	$6,000	$51	$51	$20,326	$35,000	$35,118
17	78	74	$209	$1,000	$52	$52	$19,850	$35,000	$35,111
18	79	75	$166	$1,000	$53	$53	$19,327	$35,000	$35,130
19	80	76	$117	$1,000	$55	$55	$18,704	$35,000	$35,159
20	81	77	$63	$1,000	$56	$56	$17,955	$35,000	$35,175
21	82	78	$1	$1	$58	$58	$17,101	$35,000	$35,198
22	83	79	$2	$2	$59	$59	$16,077	$35,000	$35,241
23	84	80	$2	$2	$61	$61	$14,962	$35,000	$35,297

Rounded vs. Unrounded (optimal) **B**

Year	Income	Income (rounded)	Income (difference)	Net Estate Value	Net Estate Value (rounded)	Net Estate Value (difference)
1	$80,000	$79,727	$-273	$1,761,452	$1,761,720	$269
2	$145,200	$145,206	$6	$1,785,744	$1,786,053	$309
3	$131,528	$130,781	$-747	$1,819,777	$1,820,609	$832
4	$103,219	$102,889	$-330	$1,892,336	$1,893,259	$923
5	$93,589	$93,417	$-172	$1,981,167	$1,981,976	$809
6	$111,918	$111,945	$27	$2,052,185	$2,052,971	$786
7	$165,040	$164,721	$-319	$2,072,675	$2,073,964	$1,289
8	$121,356	$121,667	$311	$2,149,882	$2,150,839	$956
9	$109,486	$109,125	$-360	$2,258,591	$2,259,915	$1,324
10	$131,594	$131,627	$33	$2,353,708	$2,355,050	$1,343
11	$118,420	$119,157	$737	$2,467,038	$2,467,639	$601
12	$224,148	$223,285	$-862	$2,476,681	$2,478,110	$1,430

C) Net Estate Value:

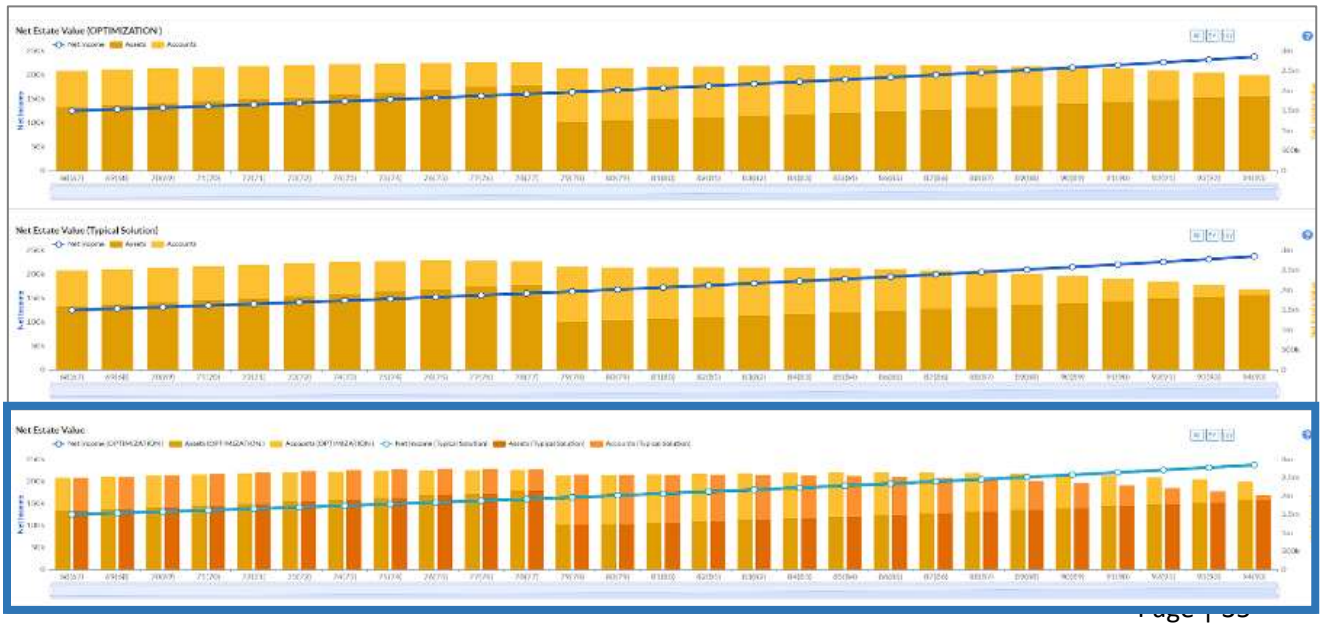
1. **Net Estate Value:** The sum of all accounts, plus all assets, minus deferred taxes. This can be viewed as a graph (i) or table (ii). This graph allows you to separate net worth in each year for each of the scenarios in terms of:
    a. Net Income (Net Income is the amount of money available for the client to use, net of taxes.) If funds suffice to cover the estimated expenses as per input parameters, this number will be those estimated expenses. It will differ only if insufficient funds remain, as accounts are depleted.
    b. Assets (such as Real Estate)
    c. Accounts (meaning financial accounts such as RRSP, LIRA, etc.)



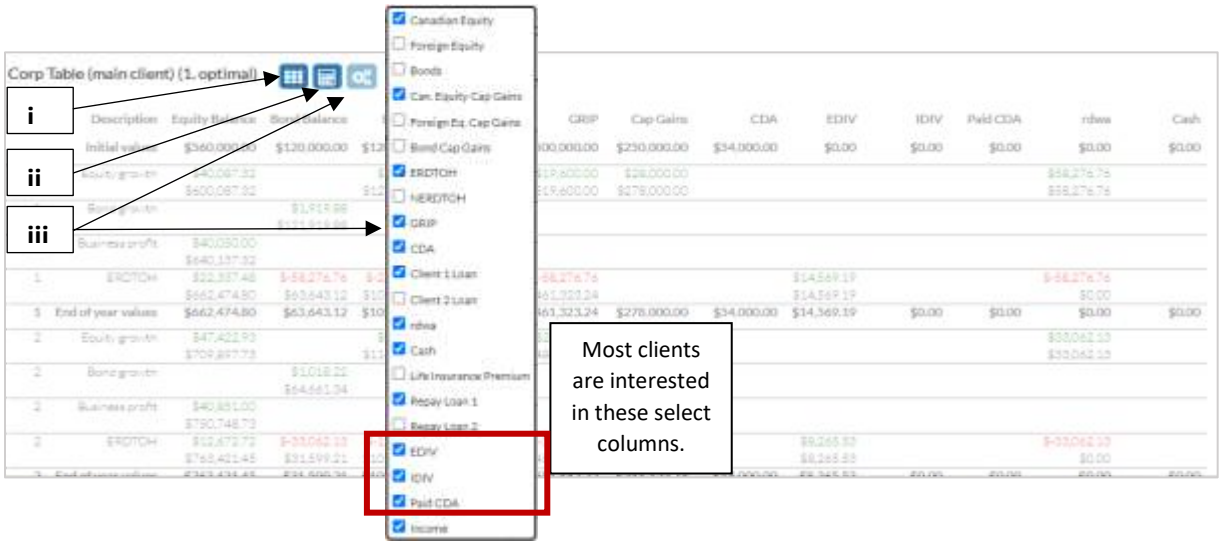
Net Estate Value (optimal_3) **ii**

Year	Age 1	Age 2	Assets	Accounts	Net Estate Value	Net Income
1	65	65	$1,575,000	$1,748,224	$3,323,224	$155,000
2	66	66	$1,653,750	$1,802,850	$3,456,600	$92,250
3	67	67	$1,736,438	$1,851,881	$3,588,319	$110,316
4	68	68	$1,823,259	$1,925,273	$3,748,533	$96,920
5	69	69	$1,914,422	$1,985,492	$3,899,915	$115,900
6	70	70	$2,010,143	$2,006,478	$4,016,621	$159,790
7	71	71	$2,110,651	$2,079,028	$4,189,678	$121,768
8	72	72	$2,216,183	$2,173,398	$4,389,581	$106,982
9	73	73	$2,326,992	$2,253,048	$4,580,040	$127,932

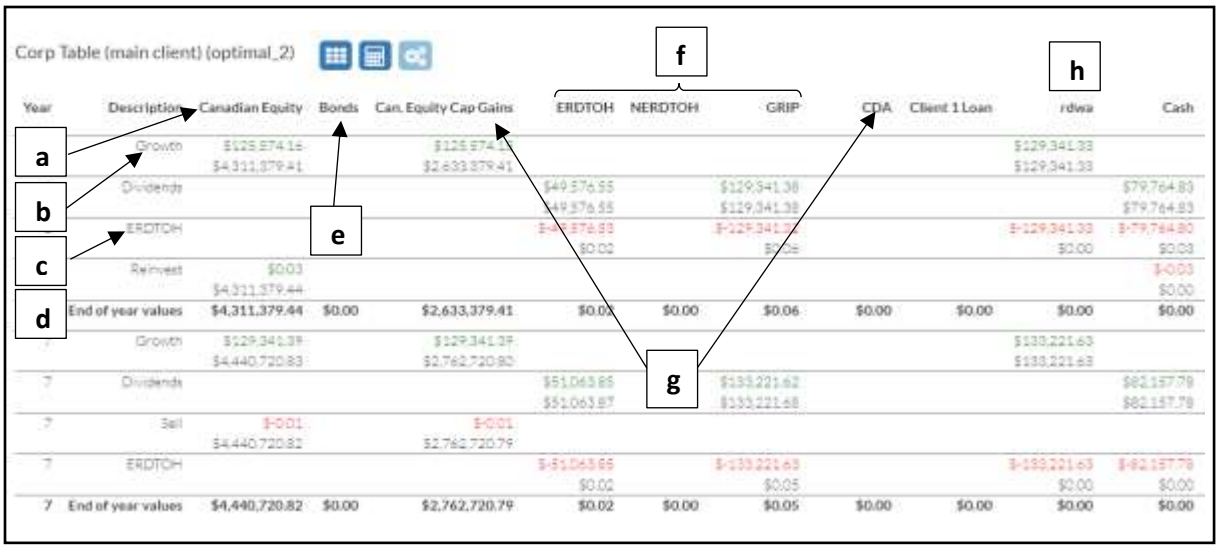
2. **Net Estate Value Combined**: If you have run one more than one job, this graph allows you to view the outputs from the different jobs on one graph for easier comparison.



3. **Corp Table**: The Corporate Table provides the optimal plan for the corporate accounts over all the years of the financial plan, with projections of the future to maximize tax efficiency, while considering all other withdrawals, (reg and non-reg, TFSA), through all years of the financial plan (including retirement).
   The table shows you each amount for each year, displaying the position at the start and end of each year. At the end of the year, the returns from assets have occurred, and withdrawals have been made. Withdrawals are shown in red. Growth is shown in green.
   i. Show/Hide Details on the table
   ii. Show resulting value after every change ("Show details" must be clicked on)
   iii. Select Columns to select which accounts should be displayed

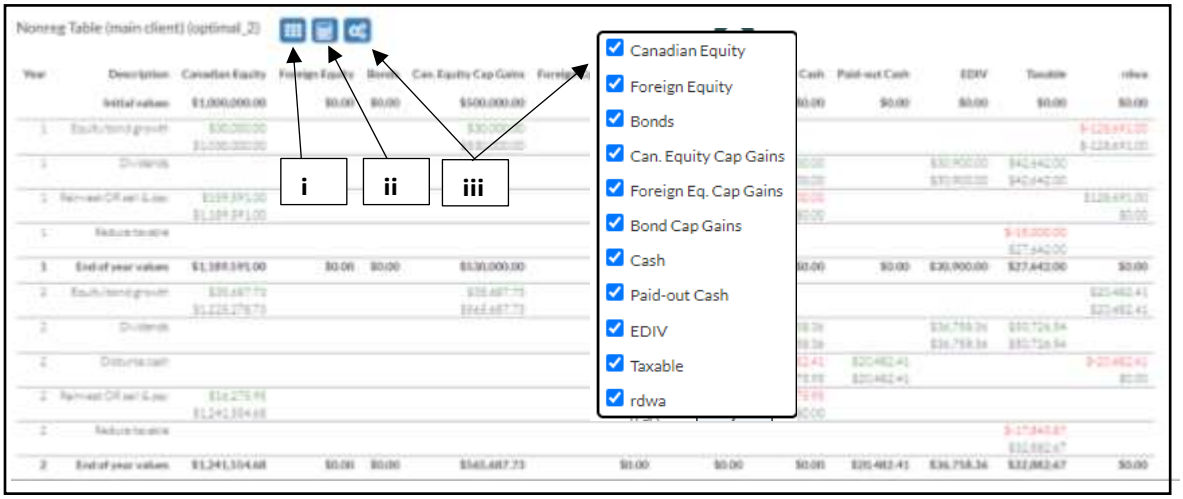


   a. Investments in the broad stock market broken down by Canadian equity, non-Canadian equity and Fixed-income assets.
   b. Projected growth for the year is shown based on the user's input growth rate.
   c. Refund from paying out eligible dividends from the ERDTOH account.
   d. The total of all of these gives you the end of year value.
   e. Bond Balance: final year end balance calculated by bond growth (green) and sales (red).
   f. The next three columns describe notional accounts. The system tracks these amounts.
      i. GRIP is the general rate income pool. This gets funded in 2 ways: from the Equity Balance producing eligible dividends and the Active Business Income above $500K. Money that flows into the GRIP pool gets paid as eligible dividends.
   g. Capital Gains are the unrealized capital gains. These grow with equity growth and are realized when equity is sold. The CDA account grows when you sell equities. The Capital Dividends are tax free.
   h. Rdwa: Remaining desired withdrawal amount. With 'Show Details' and 'Show resulting value after every change' clicked, the amount shows the sources of income as repayments and reinvestments occur.

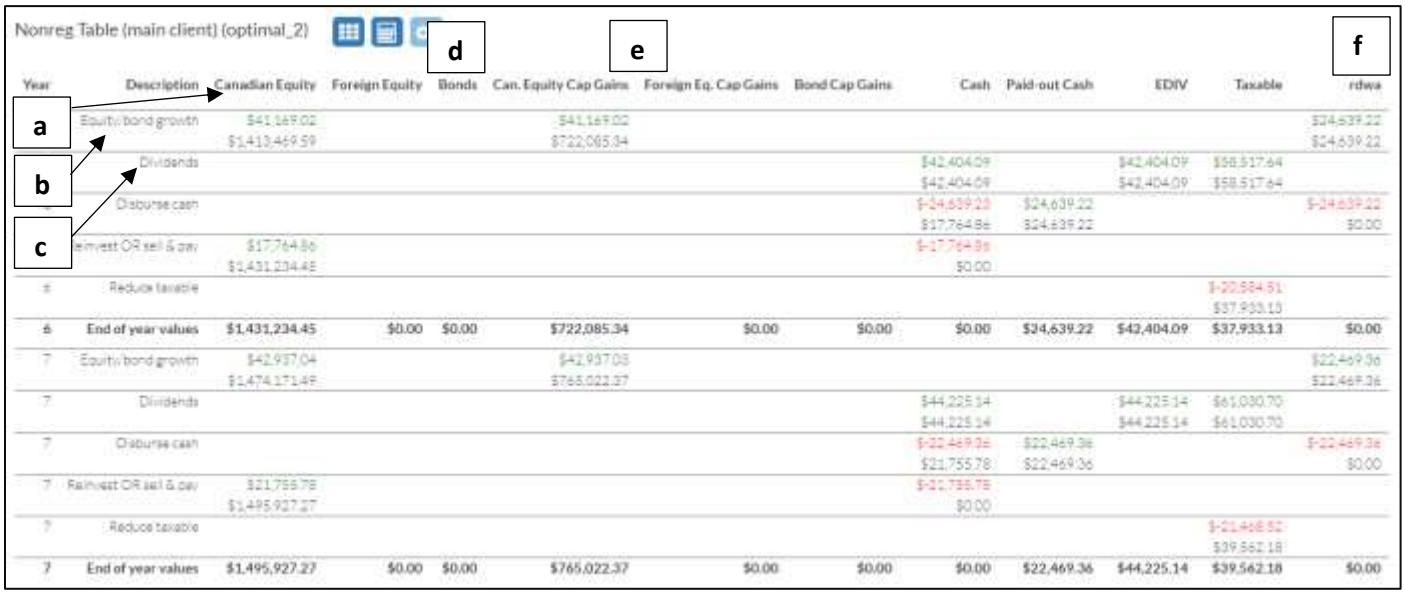


The magic of Retirement-Optimizer is cleverly using Capital Gains, the CDA, the Eligible Dividends (EDIV) and the Ineligible Dividends (IDIV) along with registered and non-registered accounts to maximize the client's after-tax income while maximally tax efficient across the complete retirement.

4. **Non-registered Table:** The Non-reg Table provides the optimal plan for non-registered accounts over all the years of the financial plan, with projections of the future to maximize tax efficiency, while considering all other withdrawals, through all years of retirement.
   The table shows you each amount for each year, displaying the position at the start and end of each year. At the end of the year, the returns from assets have occurred, and withdrawals have been made. Withdrawals are shown in red. Growth is shown in green.
   i. Show/Hide Details on the table
   ii. Show resulting value after every change. Show/Hide Details must be turned on.
   iii. Select Columns to select which accounts should be displayed



a. Investments in the broad stock market broken down by Canadian equity, non-Canadian equity and Fixed-income assets.
b. Projected growth for the year is shown based on the user's input growth rate.
c. The total of all of these gives you the end of year value.
d. Bond Balance: final year end balance calculated by bond growth (green) and sales (red).
e. Capital Gains are the unrealized capital gains. These grow with equity growth and are realized when equity is sold. The CDA account grows when you sell equities. The Capital Dividends are tax free.
f. Rdwa: Remaining desired withdrawal amount. With 'Show Details' and 'Show resulting value after every change' clicked, the amount shows the sources of income as repayments and reinvestments occur.



Nonreg Table (main client) (optimal_2)

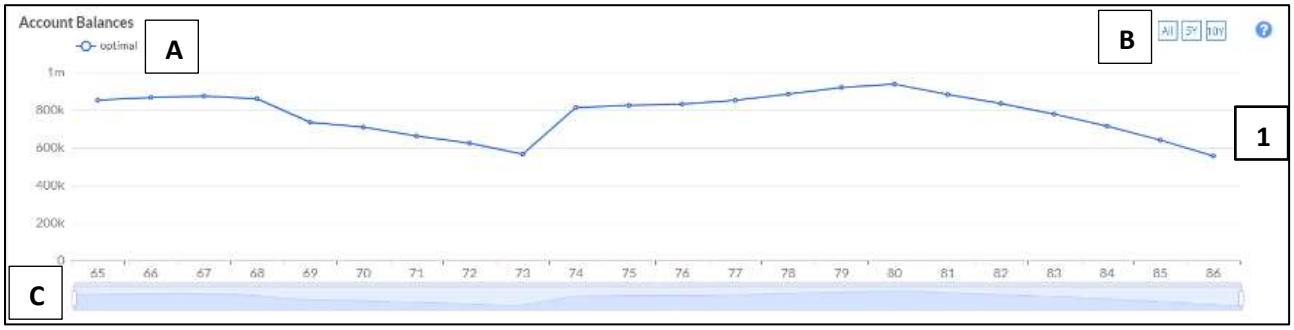
a
b
c
d
e
f

Year	Description	Canadian Equity	Foreign Equity	Bonds	Can. Equity Cap Gains	Foreign Eq. Cap Gains	Bond Cap Gains	Cash	Paid-out Cash	EDIV	Taxable	rdwa
	Equity bond growth	$41,169.02			$41,169.02							$24,639.22
		$1,413,469.59			$722,085.34							$24,639.22
	Dividends							$42,404.09		$42,404.09	$58,517.64	
								$42,404.09		$42,404.09	$58,517.64	
	Disburse cash							$-24,639.22	$24,639.22			$-24,639.22
								$17,764.86	$24,639.22			$0.00
	Reinvest OR sell & pay	$17,764.86						$-17,764.86				
		$1,431,234.45						$0.00				
	Reduce taxable										$-20,584.51	
											$37,933.13	
6	**End of year values**	**$1,431,234.45**	**$0.00**	**$0.00**	**$722,085.34**	**$0.00**	**$0.00**	**$0.00**	**$24,639.22**	**$42,404.09**	**$37,933.13**	**$0.00**
7	Equity bond growth	$42,937.04			$42,937.03							$22,469.36
		$1,474,171.49			$765,022.37							$22,469.36
7	Dividends							$44,225.14		$44,225.14	$61,030.70	
								$44,225.14		$44,225.14	$61,030.70	
7	Disburse cash							$-22,469.36	$22,469.36			$-22,469.36
								$21,755.78	$22,469.36			$0.00
7	Reinvest OR sell & pay	$21,755.78						$-21,755.78				
		$1,495,927.27						$0.00				
7	Reduce taxable										$-21,468.52	
											$39,562.18	
7	**End of year values**	**$1,495,927.27**	**$0.00**	**$0.00**	**$765,022.37**	**$0.00**	**$0.00**	**$0.00**	**$22,469.36**	**$44,225.14**	**$39,562.18**	**$0.00**

D) Balances:

1. **Balances** shows the Net Worth ($) in each year of retirement and for each scenario.

2. **Stacked Balances:** This graph displays the calculated value of each account for any given year.
    a. Select which accounts to view by clicking on the legend keys. This adds or removes entries from the graph (A). Select the time period to view by clicking the timeframe on the right-hand corner(B), to view results from either the entirety of retirement, first 5 years or first 10 years, or (C), define a time period on the lower bar by clicking and dragging over the desired period.

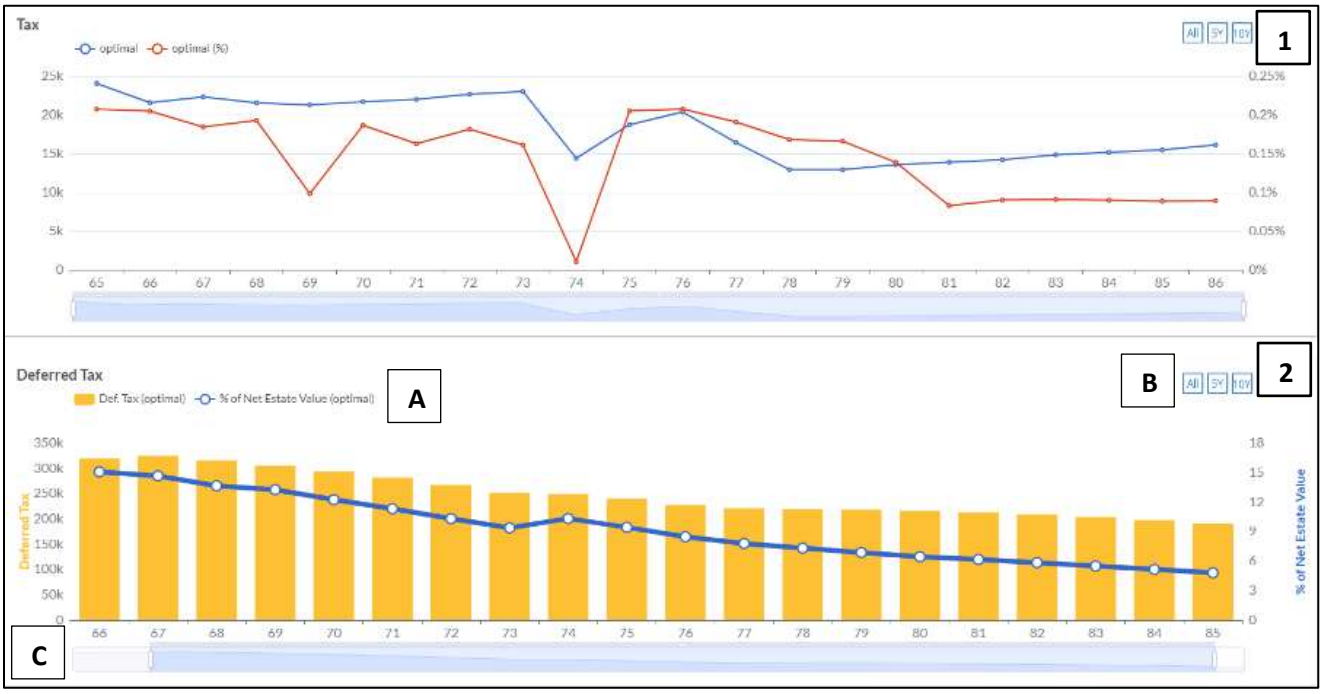


3. **Stacked Balances Table:** Provides the calculated value of each account for any given year in a table format.

E) Tax:

1. **Tax:** The tax to be paid for each scenario. It can be shown in terms of dollars or percentage of withdrawals.

2. **Deferred Tax:** The deferred tax owing in any given year for each scenario. The Net Worth in any given year is shown considering the taxes due if the account is liquidated (due to the client or spouse's death) in that year. True net worth is the sum of assets minus the deferred taxes owing on those assets.
    a. Select which values to view by clicking on the legend keys to add or remove and entry from the graph (A). Select the time period to view by clicking the timeframe on the right-hand corner to view results from the entirety of retirement, first 5 years or first 10 years, (B) or define a time period on the lower bar by clicking and dragging over the desired period (C).



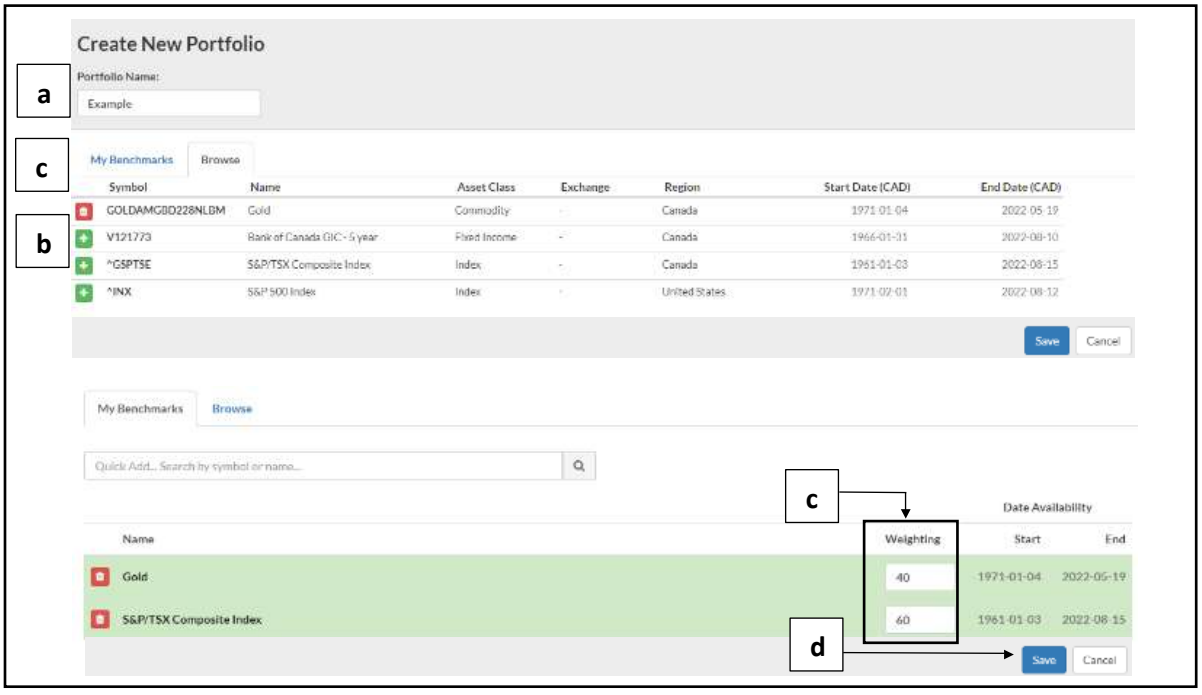
Step 12: Run Jobs Question 4 Benchmarks

Question 4

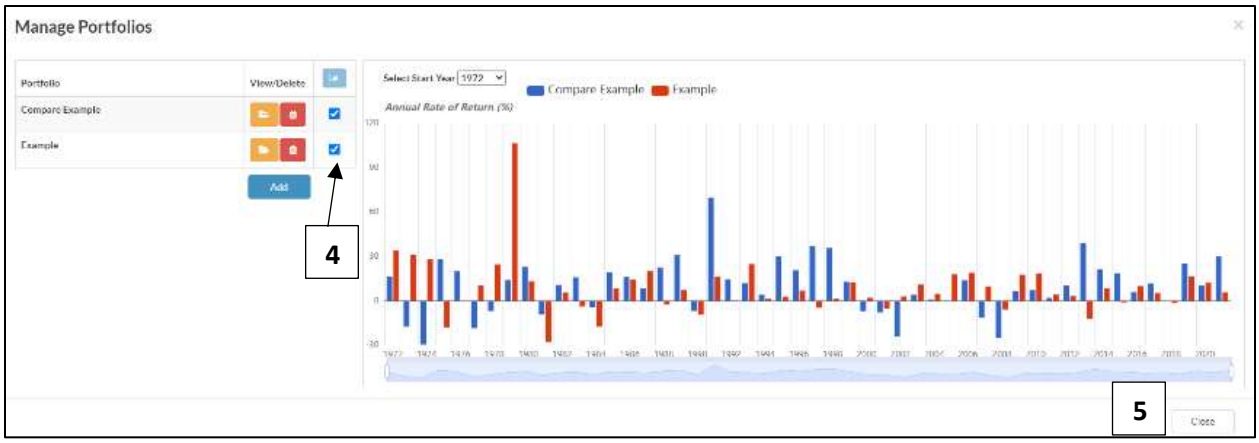
How many years would I have remained retired with my portfolio based on historical returns?

Creating confidence in the Retirement Plan is a key goal of many financial planners. This software tool makes it easy to stress-test assumptions. To test assumptions against historical data, describe the client's investment profile and run the analysis (job). The result is a graph showing how the client would have done historically with a similar investment profile. Data is available going back more than 50 years. It is possible to mirror the client's portfolio proportionately using Gold, the S&P/TSX Composite Index, S&P 500 Index, and the Bank of Canada GIC - 5 year values.

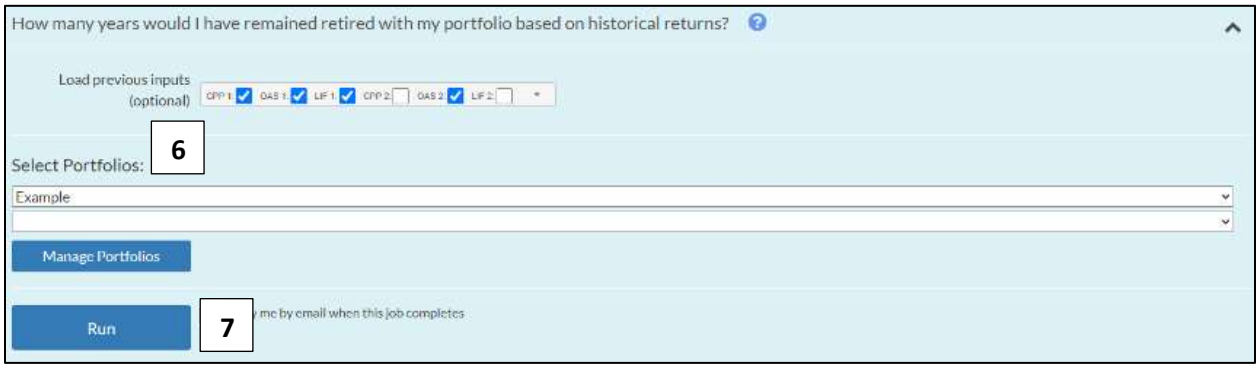
1. Click on the Manage Portfolios button to start the process. A pop-up window will appear
2. In the window that opens, click the Add button.
3. Create Portfolio:
    a. Type in a name you wish to save the portfolio
    b. Click on the green plus sign to add Gold (representing precious metals), BoC GIC to represent Bonds, and S&P indices to represent Canadian and US Equities. To unselect, click on the red trash can icon.
    c. Click My Benchmarks to allocate weighting to each asset class represented (%). The total should add up to 100%.
    d. Click Save.



4. Once you have created a portfolio, you can easily view one or more by checking the box on the right-hand side.
5. Close the window to proceed with the analysis.



6. Select which portfolios you would like to view in the drop-down menu. You can compare multiple portfolios at one time. To deselect a portfolio, click on the white space at the top of the drop-down menu.
7. Click Run to view insights regarding the rate of return assumptions.

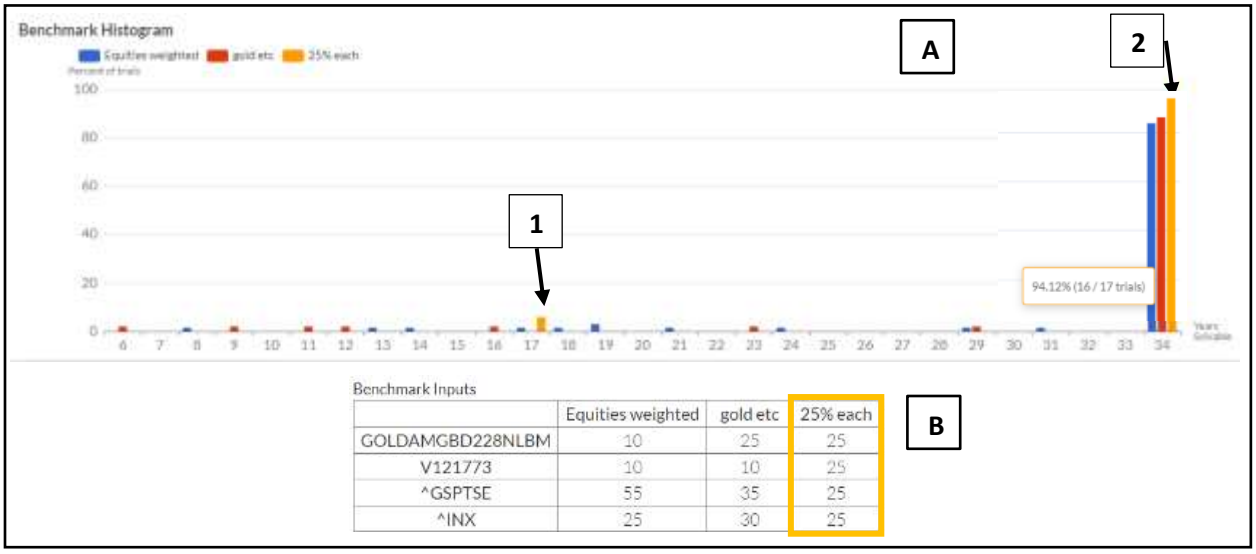


STEP 13: View Graphs Question 4 Benchmarks

Questions 4

The Benchmark Histogram shown below reveals the investment management results [A].

In this example, we show 3 portfolio compositions. Each portfolios asset allocation can be viewed in Benchmark Inputs [B]. The portfolios were compared to actual results since 1971. The retirement duration used was 34 years.



	Equities weighted	gold etc	25% each
GOLDAMGBD228NLBM	10	25	25
V121773	10	10	25
^GSPTSE	55	35	25
^INX	25	30	25

Since 1971 the Equity portfolio succeeded in 28 of 34 time periods (**82%**). In one instance each, retirement funds were spent in years 31, 19, 17, 14, 13, and 8. Based on historical returns, the Equity portfolio falls short slightly more often than the Gold etc. portfolio. Although the past does not predict future returns, these results suggest carefully considering portfolio design.

There have been 17 different 34-year periods for the Gold portfolio. Based on historical returns (instead of the return rates input manually), the Gold portfolio succeeded in 34 years of funded retirement, in 15 of the 17 scenarios in the historical record (**88%**). In one instance, this portfolio only succeeded in financing retirement for 11 years and once for 6 years. These less-than-successful instances likely began before 1975 and 1981, which experienced 11% and 24% losses in the markets.

The distributed portfolio (where funds are invested equally in Gold, GICs, S&P TSX, and S&P) succeeds **94%** of trials. In 1 of 17 trials, the funds last only 17 years [1]. In all 16 other instances, based on historical returns, the portfolio succeeds in funding retirement goals to the desired 34 years [2].

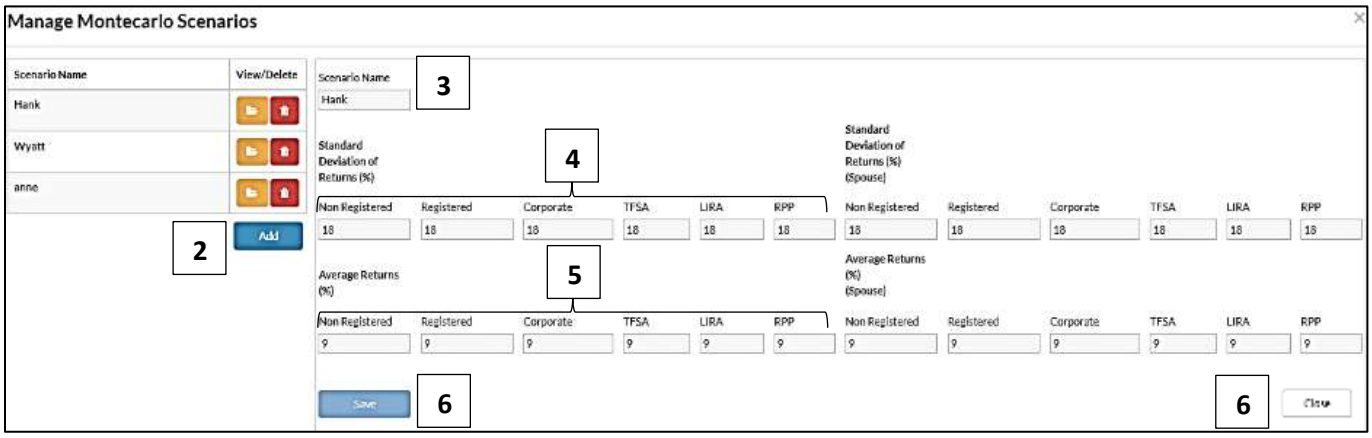
Step 12: Run Jobs Question 5 Monte Carlo Analysis

Question 5

How likely am I to meet all my goals given my expected returns and volatility?

The Monte Carlo Simulation allows further stress testing of the retirement plan.

1. Click Manage Monte Carlo Scenarios to create and manage a Monte Carlo scenario.
2. In the window that opens, click on the Add button.
3. In the next window that opens, enter a Name to save the scenario.
4. Enter the historic individual standard deviation of returns on each type of account. Classically, the standard deviation of returns on indices has been roughly 18%. This information can be verified via Google, or if you have access to better information through your corporate connections, utilize that. If you have a corporate account (**Step 5**) you will also have to input the standard deviation of corporate rates (%)
5. In the line below, enter the average anticipated rate of return on investments (%). If you have a corporate account (**Step 5**) you will also have to input the average anticipated rate of return for corporate rates (%).
6. Save and Close.



7. Go to Select Monte Carlo scenario drop down and select scenario. You can select multiple scenarios. To unselect, click the blank space at the top of the drop-down menu.
8. Enter the number of trials you would like the simulation to run. 100 trials is reasonable as the analysis is very complex and can take a lot of time to complete.
9. Click the Run button.

STEP 13: View Graphs Question 5 Monte Carlo

Question 5

The Monte Carlo Simulation will let you know, based on the parameters entered, how often the retirement goals will be met. The simulation generates the number of trials (in this case, 100) and counts the number of times that there are sufficient funds to meet retirement goals. These can be viewed as a donut chart (A) or a histogram (B). The Monte Carlo Inputs table lets you see inputs of the estimates of standard deviations, **σ**, (modeling volatility of market returns) and the estimated rate of return, **μ** (C).

Client	Account	σ	μ	σ	μ	σ	μ
		anne		Hank		Wyatt	
1	Non-Reg	8.00%	5.00%	18.00%	9.00%	18.00%	8.00%
1	Reg	3.00%	5.00%	18.00%	9.00%	18.00%	5.00%
1	Corp	7.00%	5.00%	18.00%	9.00%	10.00%	8.00%
1	TFSA	8.00%	5.00%	18.00%	9.00%	18.00%	8.00%
1	LIF	5.00%	5.00%	18.00%	9.00%	18.00%	8.00%
1	RPP	0.00%	0.00%	18.00%	9.00%	18.00%	8.00%
2	Non-Reg	8.00%	5.00%	18.00%	9.00%	18.00%	8.00%
2	Reg	7.00%	5.00%	18.00%	9.00%	18.00%	8.00%
2	Corp	3.00%	5.00%	18.00%	9.00%	1.00%	8.00%
2	TFSA	8.00%	5.00%	18.00%	9.00%	18.00%	8.00%
2	LIF	5.00%	5.00%	18.00%	9.00%	18.00%	8.00%
2	RPP	0.00%	0.00%	18.00%	9.00%	18.00%	8.00%

In the three scenarios run, retirement goals would be met. Note: in the Anne scenario, the estimates of standard deviations, **σ**, (modeling volatility of market returns) are lower than actuals historically. In Hank and Wyatt scenarios, the estimates of standard deviations, **σ**, are closer to historical market values. The estimated rate of return, **μ**, in the Anne scenario, was entered at less than the inflation rate (5% rate of return versus 6% inflation) and at a more realistic 3% and 2% over inflation for Hank and Wyatt scenarios.

Comparing to Non-Optimizing Software: Questions 6-8

This section allows comparison to plans that can be generated by other software in the marketplace using strategies instead of true optimization. The analysis is based on rules of thumb or other common strategies that have the financial planner using trial and error to attempt to find an optimal solution. Compare these results with the Optimal plans created (Questions 1-3) and enjoy the superior results from the Retirement-Optimizer plans. (see Step 13 View Graphs for instructions)

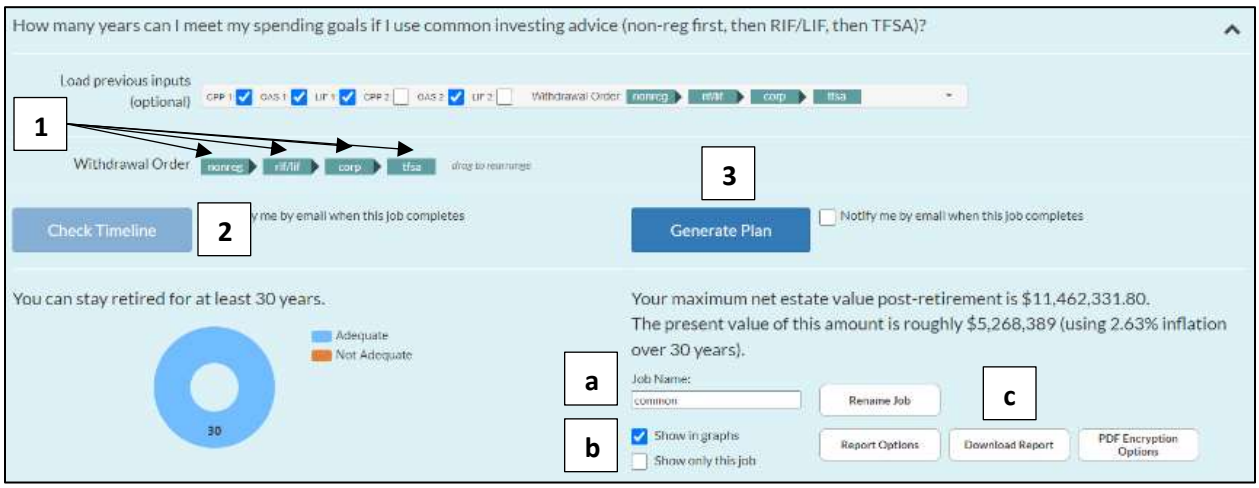
Question 6

How many years can I meet my spending goals if I use common investing advice?

A common strategy advised is to withdraw from accounts in a specific order; non-registered accounts followed by RIF/LIF and then the TFSA. Often times corporate accounts are left to grow until the end of retirement.

To run this analysis:

1. The Withdrawal Order is automatically set to answer the question; however, you can click and drag each account to change the order (which can also answer Questions 2 and 3).
2. Click Check Timeline
3. Click Generate Plan to run the analysis.



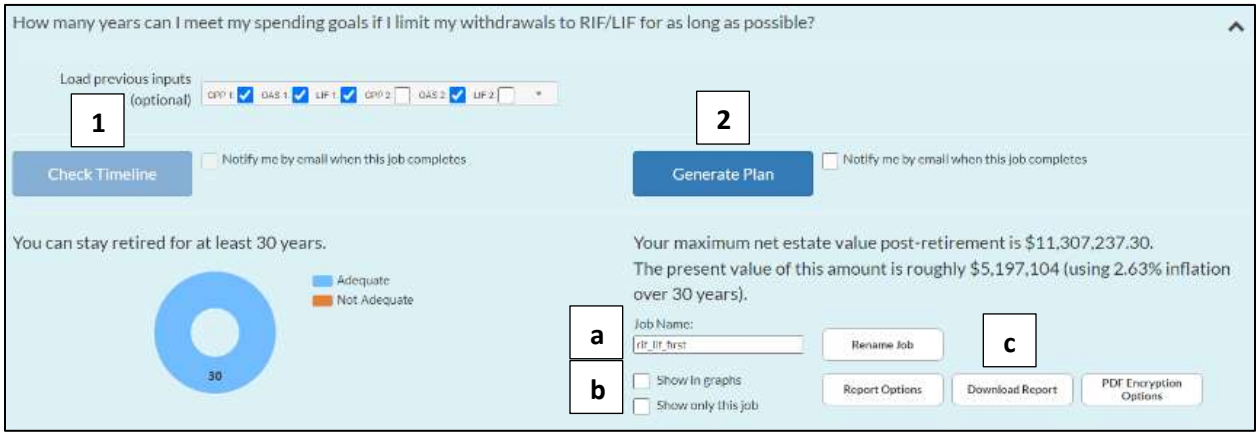
a. The Job Name will save with a default name. Rename the job for easy comparison and click the 'Rename Job' button.
b. Click on 'Show in graphs' for each question that you would like to view and compare. To view only the graphs of one question, **first** select 'Show in graphs' and then select 'Show only this job'.
c. Click on "Report Options" to see the list of details, graphs and tables that will be included in the pdf output for the client. A separate report is generated for each question. Once the report is generated, 'Download Report' converts to a pdf. Encrypt the pdf with a password by selecting 'PDF Encryption Options'.

Question 7

How many years can I meet my spending goals if I limit my withdrawals to RIF/LIF for as long as possible?

To run the analysis:

1. Click Check Timeline
2. Click Generate Plan to run the analysis.



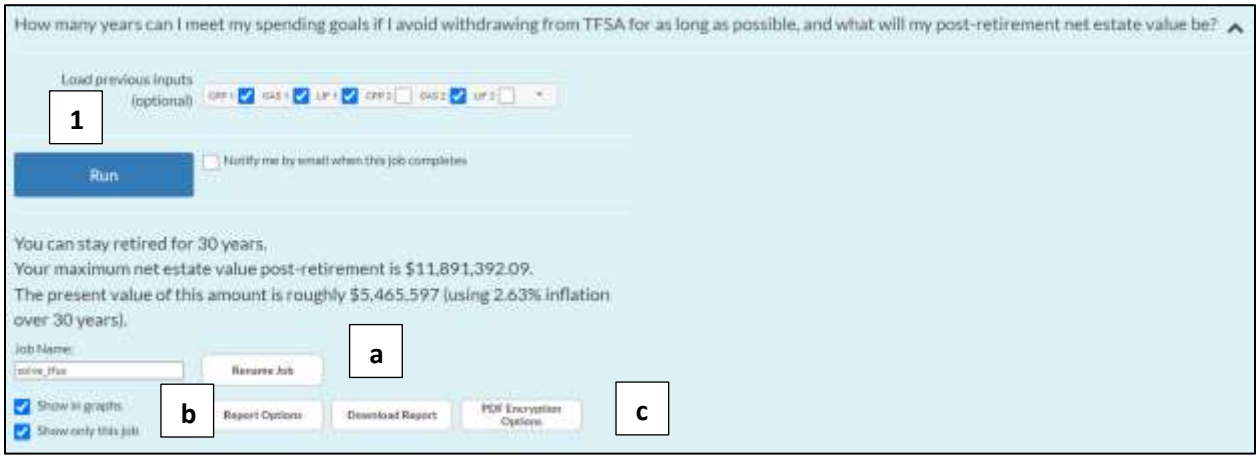
a. The Job Name will save with a default name, be sure to rename the job if you wish to compare various inputs and their respective outputs (jobs), and click the 'Rename Job' button.
b. Click on 'Show in graphs' for each question that you would like to view and compare. Should you have run analysis on multiple questions and wish to only view the graphs of one question, **first** select 'Show in graphs' and then select 'Show only this job' for the respective question.
c. Click on "Report Options" to see the list of details, graphs and tables that will be included in the pdf output for the client. A separate report is generated for each question. Once the report is generated, it may be downloaded into a pdf with 'Download Report.' Encrypt the pdf with a password by selecting 'PDF Encryption Options'.
    i. Client mode is for the specific client you are working with.
    ii. Global mode is for all of your clients.

Question 8

How man years can I meet my spending goals if avoid withdrawing from TFSA for as long as possible, and what will my post-retirement net estate value be?

To run the analysis:

1. Click Run to complete the analysis. The Plan will be generated for viewing in **Step 13**.



a. The Job Name will save with a default name, be sure to rename the job if you wish to compare various inputs and their respective outputs (jobs), and click the 'Rename Job' button.
b. Click on 'Show in graphs' for each question that you would like to view and compare. Should you have run analysis on multiple questions and wish to only view the graphs of one question, **first** select 'Show in graphs' and then select 'Show only this job' for the respective question.
c. Click on "Report Options" to see the list of details, graphs and tables that will be included in the pdf output for the client. A separate report is generated for each question. Once the report is generated, it may be downloaded into a pdf with 'Download Report.' Encrypt the pdf with a password by selecting 'PDF Encryption Options'.
    i. Client mode is for the specific client you are working with.
    ii. Global mode is for all of your clients.

RETIREMENT- OPTIMIZER
CLIENT INFORMATION

ESENTIAL PARAMETERS

Below is a comprehensive intake form. Please fill in all fields that apply. If you do not have some of the information, you may input an estimate which can be changed later.

	CLIENT	SPOUSE
Age		
Duration of financial plan (years)		
Province/ Territory of residence		
Matrial Status		
Pension splitting		
Disability tax credit		
Taxable annual income from previous year		

SPENDING TARGETS

Net Annual Target Income *If will remain the same*	
Expected Inflation (%)	

Target Income Changes
(travel, major purchases, stages of retirement including Long Term Care etc.)

	Description	Start Year	End Year	Annual Amount	Every # Years	Inflation (%)
1)	ex. Base Spending	1	30	100 000	1	3
2)						
3)						
4)						
5)						

INCOME (TAXABLE AND NON-TAXABLE)

Source of Income (work, consulting, rentals etc.)

	Description	Start Year	End Year	Annual Amount	Every # Years	Inflation (%)	Taxable ?
1)	ex. Consulting	11	20	120 000	1	3	☐
2)							☐
3)							☐
4)							☐
5)							☐

CPP, OAS, DEFINED BENEFIT PENSION

	CLIENT	SPOUSE
Already taking CPP?		
Annual CPP amount *In the first year of the plan*		
CPP Start age *If not already receiving*		
Total annual CPP amount to receive at 65 *If not already receiving*		
Already taking OAS?		
OAS Start age		
Eligible full OAS?		
Years lived in Canada *If not fully eligible*		
Defined Benefit Pension Annual Amount		
Defined Benefit Pension Growth (%) *If indexed to inflation*		

RRSP, TFSA, LIRA ACCOUNTS

	CLIENT	SPOUSE
Dollar value RRSP		
RRSP rate of return (%)		
Dollar value TFSA		
TFSA contribution space ($) *0 if TFSA is maxed out*		
TFSA rate of return (%)		
Dollar value LIRA		
LIRA rate of return (%)		
Age to begin withdrawal from LIRA *If not yet receiving*		

ASSETS

Assets
(e.g. real estate)

	Description	Already owned?	Acquisition year	Dollar value	Annual Growth rate	Will be Liquidated ?	Liquidation year	Client		Spouse	
								Tax-free amount	Taxable amount	Tax-free amount	Taxable amount
1)	ex. House	No	5	1 000 000	3	Yes	15	500 000	0	500 000	0
2)											
3)											
4)											
5)											

HELOC

	HELOC initial amount	Start Year	Interest (%)	Annual Amount	Annual amount growth (%)	Amount owed
1)	ex. 20 000	1	5	5000	3	10 000
2)						
3)						
4)						

NON-REGISTERED ACCOUNTS

	CLIENT			SPOUSE		
	CANADIAN EQUITY	NON-CANADIAN EQUITY	FIXED INCOME ASSETS	CANADIAN EQUITY	NON-CANADIAN EQUITY	FIXED INCOME ASSETS
Dollar value						
Adjusted Cost Basis ($)						
Growth rate (%)						
Dividend yield (%)						
Distributed Capital Gain (%)						
Return of Capital distribution (%)						
Interest rate (%)						

	CLIENT	SPOUSE
% Portfolio rebalanced on an annual basis		
Will account maintain same ratio		
Annual advisory fee on account (%)		

MARGIN LOAN ON NON-REGISTERED ACCOUNT

Annual loan payment for investing ($)		
Number years until loan is repaid		

CORPORATE ACCOUNTS

CORPORATE ACCOUNT 1

	CLIENT	SPOUSE
Ownership stake (%)		
Does TOSI apply?		

CORPORATE ACCOUNT 2

	CLIENT	SPOUSE
Ownership stake (%)		
Does TOSI apply?		

	CORP 1			CORP 2		
	CANADIAN EQUITY	NON-CANADIAN EQUITY	FIXED INCOME ASSETS	CANADIAN EQUITY	NON-CANADIAN EQUITY	FIXED INCOME ASSETS
Dollar value						
Unrealized capital gains ($)						
Growth Rate (%)						
Dividend yield (%)						
Distributed Capital Gain (%)						
Return of Capital distribution (%)						
Current value ERDOH						
Interest rate (%)						

CORPORATE ACCOUNTS (CONTINUED)

INCOME

	CORP 1		CORP 2	
	ACTIVE BUSINESS	OTHER INVESTMENT INCOME	ACTIVE BUSINESS	OTHER INVESTMENT INCOME
Pre-tax annual profit ($)				
Annual growth rate (%)				
# years corporation will continue to generate income				

	CORP 1	CORP 2
% Portfolio rebalanced annual basis		
Dollar value of shareholder loans owed		
Current value in NERDTOH account		
Current value GRIP		
Current balance Capital Dividend account		

CORPORATE ACCOUNTS (CONTINUED)

	CORP 1	CORP 2
CAPITAL ACCOUNT		
Minimum dollar value Capital dividend distribution		
Will corp maintain same ratio Canadian equities, non-Canadian equities, and fixed income assets?		
LIFE INSURANCE		
Will the client by paying life insurance out of their corporate account?		
Life insurance annual premiums *If paying life insurance*		
Life insurance payout at death *If paying life insurance*		
INDIVIDUAL PENSION PLAN		
Dollar value paid out of IPP annual *If client has an IPP*		
% Growth IPP payout		
Actuarial residual at end of retirement		

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