Technical Reference Manual

Application: Foothills R&R Wealth Planner

Version: v36 (Secure Client Edition)

Date: April 15, 2026

System Architecture

The planner utilizes a **Local-Execution Architecture**. All calculation logic and data storage occur strictly within the user's browser session.

- **Data Isolation:** Zero financial data is transmitted to any server.
- **Persistence:** Inputs are stored in the browser's volatile RAM or **localStorage** only if the user clicks "Save Inputs."

The Time-Step Simulation Engine

The core engine executes a discrete, year-by-year loop:

1. **Survivor Check:** If $Current\ Year > Spouse\ Plan\ Until$, the engine triggers the **Widow Protocol**, terminating the lower SS benefit and switching tax filing to Single.
2. **Growth Calculation:** Applies specific **Return Stage** rates to the portfolio. If no stage is active, it defaults to the asset-specific return rate.
3. **The Withdrawal Loop:** If a cash gap exists, the engine iterates through assets based on the **Withdrawal Strategy**.
4. **The "Gross-Up" Solver:** For Tax-Deferred (401k/IRA) withdrawals, the engine runs an internal 8-step iteration to calculate the exact gross amount needed to satisfy the net cash deficit plus the resulting incremental tax.

Event & Cash Flow Logic

One-time events are treated as **"Net Cash Flows"**:

- **Capital Gains:** Event Tax is calculated as $Gross\ Proceeds \times (Tax\ Rate / 100)$.
- **Deficit Coverage:** Event proceeds are applied *first* to cover the current year's spending gap.
- **Reinvestment:** Only the surplus is added to the investment portfolio based on the user-selected destination (Portfolio, Cash, or Spend).