STF Property Calculator

Technical Formula & Mathematical Logic Documentation

1. PROPERTY COST & INFLATION FORMULAS

CURRENT COST PER PROPERTY (SINGLE UNIT)

```
Current Cost = ((Initial Cost × Amount Owned) / 10) + Initial Cost + Land Cost
```

Multiple Land Cost Multipliers: When purchasing property/land slots in multi-unit quantities, the base land cost is scaled using an aggressive ladder rather than a linear rate:

Quantity	Multiplier
2 units	Land Cost × 2.1
3 units	Land Cost × 3.3
5 units	Land Cost × 5.0
7 units	Land Cost × 8.2
10 units	Land Cost × 10.0
15 units	Land Cost × 20.0
20 units	Land Cost × 30.0

Quantity	Multiplier
25 units	Land Cost × 45.0
30 units	Land Cost × 60.0
35 units	Land Cost × 80.0
50 units	Land Cost × 150.0
70 units	Land Cost × 280.0
100 units	Land Cost × 550.0

2. RETURN ON INVESTMENT & PAYBACK PERIOD

RETURN ON INVESTMENT (ROI %)

```
ROI = (Income / Current Cost) × 100
```

TURNS TO PAY FOR ITSELF & INFLATION THRESHOLD

```
Turns to Pay for Itself = Ceiling(Current Cost / Income)
Turns to Pay Off Inflation = (Initial Cost × 0.1) / Income
```

3. CASH FLOW & CHARACTER TURN RATES

NET INCOME PER TURN (CASH FLOW)

```
Net Income = ∑(Income × Amount Owned) − Upkeep + (Other Daily Income / Turn Divisor)
```

User Class / Character Type	Exact Turn Divisor (Turns / Day)
Type 1: Tycoon / Merchant / Privateer	30.00000000 turns / day
Type 2: BulletProof / Warrior / Buccaneer	24.00000000 turns / day
Type 3: Insomniac / Kingpin / Explorer	34.28571429 turns / day
Type 4: Double Agent / Songweaver / Shipmaster	36.00000000 turns / day
Type 5: Slicer / Assassin / Druid	37.89473684 turns / day
Type 6: Mastermind	40.00000000 turns / day

- **Daily Income:** Net Income per Turn × Turn Divisor
- **Weekly Income:** Daily Income × 7

4. STRATEGIC RECOMMENDATION ALGORITHMS

- **Quickest Payback Method:** Ranks properties by sorting `(Turns to Buy 1 × Recommended Amount) + Turns to Pay for Itself` in ascending order.
- **Long Term Inflation Beating Method:** Ranks properties primarily by highest **ROI %** descending. Ties are broken by lowest **Current Cost** ascending.
- **Short Term Maximizing Income Method:** Evaluates marginal turn differences between batch sizes (1-packs, 5-packs, or 10-packs) relative to cash flow speed to recommend unit quantities.
- **Undeveloped Land as Bank:** If enabled, liquid money equals `Cash + Bank + ∑(Sale Value of fully-owned properties with Amount Owned = 10)`.
- **Time Left to Purchase:** `((Current Cost × Recommended Amount) − Liquid Money) / Net Income per Turn`. Returns 0 if total money covers cost.

5. DATA STORAGE SCHEMA (V3 TILDE DELIMITED)

COOKIE / SERVER STORAGE STRING STRUCTURE

```
~[rowNum]~[amountOwned]~[investableBool]~[bankableBool]; ... ;[upkeep_NY];[cash];[bank];[otherIncome];[upkeep_London]
```