

# Variable Mortgages: Payment Calculations & Assumptions

## Functions addressed in this document:


- What options are available in NaviPlan for mortgage payments?
- How can a variable mortgage be entered?
- What assumptions and calculations are made for Interest Only payments?
- What assumptions and calculations are made for fixed payments on Principal and Interest?
- What assumptions and calculations are made for variable payments on Principal and Interest?
- What assumptions and calculations are made for set principal payments?
- What assumptions and calculations are made for the last period payment?

### What options are available in NaviPlan for mortgage payments?


In NaviPlan, mortgages are entered on the **Assets/Liabilities** page (**Enter Financial Data – Net Worth – Assets/Liabilities**). When you create a new engagement in a client file, NaviPlan automatically includes a mortgage as a basic liability type. By default, this mortgage is initially assumed to be a fixed rate mortgage.

However, because mortgage payments can fluctuate quite a bit over time, it is important that changes in interest rates and payment amounts are accounted for in order to create an accurate and successful plan. When this is the case, a variable mortgage can be entered to better reflect the client's situation.

## How can a variable mortgage be entered?

Variable mortgages can be entered in **Level 1** and **Level 2** plans on the **Assets/Liabilities** page (Enter Financial Data – Net Worth – Assets/Liabilities). To change the default fixed rate mortgage created automatically by NaviPlan under the Liabilities section, click  next to the mortgage to open the **Liabilities Details** dialog box.

### Liability Details

|                           |                          |  |                           |                                     |                           |
|---------------------------|--------------------------|--|---------------------------|-------------------------------------|---------------------------|
| <b>Description *</b>      | <b>Owner</b>             | <b>Liability Type</b>  | <b>Mortgage Type</b>      | <b>Interest Rate</b>                | <b>Compound Frequency</b> |
| Mortgage                  | Joint                    | ▼ Mortgage   | ▼ Variable                | ▼ Variable                          | ▼ Monthly                 |
| <b>Payment Type</b>       | <b>Payment Frequency</b> | <b>Link to Asset</b>   |                           | <b>Interest is Tax Deductible</b>   |                           |
| Principal and Interest    | ▼ Monthly                | ▼ Residence  |                           | <input checked="" type="checkbox"/> |                           |
| <b>Balance As of Date</b> | <b>Loan Date</b>         | <b>Renegotiate</b>   | <b>Original Principal</b> |                                     |                           |
| Mar 21 2019               | Dec 31 2018              |  Refinanced | \$125,000                 |                                     |                           |

#### Liability Details

From the **Mortgage Type** menu, select **Variable**. After selecting this option, more fields will appear under the **Calculation Options** section to allow you to further define the details of the variable mortgage.

## Establishing Interest Rate Periods

Interest rate periods are established under the **Variable Interest Rate Schedule** section of the **Liabilities Details** dialog box. Click **Add Interest Rate** to add a new data entry row. Set the time frame for the new interest rate by entering the number of months during which it will apply.

### Variable Interest Rate Schedule

Add Interest Rate Period

This section allows you to model changing interest rates on your mortgage. The schedule begins on the date entered in the Balance As of Date field for this mortgage.

|  | Payment Amount  |   |
|--|-----------------|---|
| The interest rate will be <u>10.000%</u> for the next <u>36</u> months | 2<br>\$1,041.67 | ✕ |
| The interest rate will be <u>5.000%</u> for the remaining months       | \$1,000.00      |   |

**2** If the fixed payment amount entered is insufficient to cover the interest payment required by the mortgage variables entered, the payment will be increased to cover this interest.

#### Liability Details - Variable Interest Rate Schedule

You can enter in as many different rates as appropriate for your client's situation. Depending on the **Payment Type**, NaviPlan may automatically calculates the amount of remaining **Years** and **Months** for the amortization period based on the rates and schedule entered. The **Payment** amount will be applied on a monthly basis throughout the remaining amortization period.

## Setting Variable Payment Amounts

Payment amounts can be varied under the **Calculation Options** section located of the **Liability Details** dialog box. To establish a variable payment, select **Yes** from the **Variable Payment?** menu. Once you do this, the **Years** and **Months** fields become accessible under **Remaining Amortization**. You can manually enter in the time remaining on the mortgage in these fields. When you enter a **Remaining Amortization** time frame, NaviPlan automatically calculates the payment amounts needed based on the future interest rates entered on the mortgage.

| Calculation Options |           |         |       |                        |               |
|---------------------|-----------|---------|-------|------------------------|---------------|
|                     |           |         |       | Remaining Amortization |               |
| Variable Payment?   | Balance   | Payment | Years | Months                 | End Date      |
| Yes                 | \$125,000 | Varies  |       | 17                     | 9 Dec 21 2036 |

Liability Details - Calculation Options

## How does the Payment Type affect mortgage calculations in NaviPlan?

NaviPlan determines the remaining amortization period based on the selection made from the **Payment Type** menu. There are four options available: **Interest Only**, **Principal and Interest**, **Set Principal Payment**, and **Last Period Payment**. Each of the options has different implications for the fields and calculations available in the **Liability Details** dialog box. The implications and assumptions of each option are described in the sections below.

## What assumptions and calculations are made for Interest Only payments?

When **Interest Only** is selected from the **Payment Type** menu, the payment is automatically considered to be variable. Because of this, the **Payment** field under **Calculation Options** displays the keyword **Varies** rather than allowing you to manually enter an amount. Instead, under the **Variable Interest Rate Schedule** section of the **Liability Details** dialog box, NaviPlan calculates a **Payment Amount** for period each based on the interest rate entered.

|  |                  |                          |                           |                                     |                 |
|--|------------------|--------------------------|---------------------------|-------------------------------------|-----------------|
| <b>Payment Type</b>  |                  | <b>Payment Frequency</b> | <b>Link to Asset</b>      | <b>Interest is Tax Deductible</b>   |                 |
| Interest Only  |                  | Monthly                  | Residence                 | <input checked="" type="checkbox"/> |                 |
| <b>Balance As of Date</b>  | <b>Loan Date</b> | <b>Renegotiate</b>       | <b>Original Principal</b> |                                     |                 |
| Mar 21 2019  | Dec 31 2018      | Refinanced               | \$125,000                 |                                     |                 |
| <input type="checkbox"/> Cover any pre-retirement deficits created by these liability payments |                  |                          |                           |                                     |                 |
| <b>Calculation Options</b>   |                  |                          |                           |                                     |                 |
| Remaining Amortization   |                  |                          |                           |                                     |                 |
| <b>Variable Payment?</b>   | <b>Balance</b>   | <b>Payment</b>           | <b>Years</b>              | <b>Months</b>                       | <b>End Date</b> |
| Yes  | \$125,000        | Varies                   |                           |                                     |                 |

### Liability Details - Interest Only payment

You can enter the remaining **Balance** of the mortgage under **Calculation Options**, however NaviPlan assumes that the mortgage will never be completely paid off since no payments are being made on the mortgage principal.

## What assumptions and calculations are made for fixed payments on Principal and Interest?

When **Principal and Interest** is selected from the **Payment Type** menu and **No** is selected from the **Variable Payment?** menu, you will enter the remaining **Balance** of the mortgage and the fixed **Payment** amount under **Calculation Options**.

The payment amount you enter should represent the total of both interest and principal payments. While the total payment amount will remain the same every month, the amount specifically paid towards principal will vary according to the interest rate entered for each period under **Variable Interest Rate Schedule**. If the interest rate is high enough, it is possible that the mortgage may never be paid off.

NaviPlan then determines the **End Date** of the amortization period by calculating the amount of time it will take to pay off the balance given the **Payment** amount at the rate selected from the **Payment Frequency** menu. Because the **End Date** represents the date when the mortgage will be paid off, the **Years** and **Months** fields are automatically filled rather than allowing you to manually enter values.

|  |  |                          |  |                        |  |                                     |  |
|--|--|--------------------------|--|------------------------|--|-------------------------------------|--|
| <b>Payment Type</b>  |  | <b>Payment Frequency</b> |  | <b>Link to Asset</b>   |  | <b>Interest is Tax Deductible</b>   |  |
| Principal and Interest ▼   |  | Monthly ▼                |  | Residence ▼            |  | <input checked="" type="checkbox"/> |  |
| <b>Balance As of Date</b>  |  | <b>Loan Date</b>         |  | <b>Renegotiate</b>     |  | <b>Original Principal</b>           |  |
| Mar 21 2019  |  | Dec 31 2018              |  | 📅 Refinanced           |  | \$125,000                           |  |
| <input type="checkbox"/> Cover any pre-retirement deficits created by these liability payments |  |                          |  |                        |  |                                     |  |
| <b>Calculation Options</b>   |  |                          |  |                        |  |                                     |  |
|  |  |                          |  | Remaining Amortization |  |                                     |  |
| <b>Variable Payment?</b>   |  | <b>Balance</b>           |  | <b>Payment</b>         |  | <b>Years Months End Date</b>        |  |
| No ▼   |  | \$125,000                |  | \$1,000.00             |  | 17 9 Dec 21 2036                    |  |

Liability Details - Principal and Interest payment (no variable)



## What assumptions and calculations are made for variable payments on Principal and Interest?

When **Principal and Interest** is selected from the **Payment Type** menu and **Yes** is selected from the **Variable Payment?** menu, you will enter the remaining **Balance** of the mortgage, as well as the **Years** and **Months** remaining in the amortization period under **Calculation Options**. NaviPlan automatically displays the month when the amortization of the mortgage is complete under **End Date**.

NaviPlan will calculate the **Payment Amount** for each interest rate period entered in the **Variable Interest Rate Schedule** and display the value directly to the right of the corresponding period. Because the value shown under **Payment Amount** represents the monthly payment for the period in question, the **Payment** field under **Calculation Options** displays the keyword *Varies* rather than allowing you to manually enter an amount.

Both the overall payment amount and the amount specifically paid towards principal will vary according to the interest rate entered for each period.

|  |                |                          |              |  |                 |                                     |  |
|--|----------------|--------------------------|--------------|--|-----------------|-------------------------------------|--|
| <b>Payment Type</b>  |                | <b>Payment Frequency</b> |              | <b>Link to Asset</b>   |                 | <b>Interest is Tax Deductible</b>   |  |
| Principal and Interest ▾   |                | Monthly ▾                |              | Residence ▾  |                 | <input checked="" type="checkbox"/> |  |
| <b>Balance As of Date</b>  |                | <b>Loan Date</b>         |              | <b>Renegotiate</b>   |                 | <b>Original Principal</b>           |  |
| Mar 21 2019  |                | Dec 31 2018              |              | <input type="checkbox"/><br><input checked="" type="checkbox"/> Refinanced |                 | \$125,000                           |  |
| <input type="checkbox"/> Cover any pre-retirement deficits created by these liability payments |                |                          |              |  |                 |                                     |  |
| <b>Calculation Options</b>   |                |                          |              |  |                 |                                     |  |
|  |                |                          |              | Remaining Amortization   |                 |                                     |  |
| <b>Variable Payment?</b>   | <b>Balance</b> | <b>Payment</b>           | <b>Years</b> | <b>Months</b>  | <b>End Date</b> |                                     |  |
| Yes ▾  | \$125,000      | Varies                   | 17           | 9  | Dec 21 2036     |                                     |  |

Liability Details - Principal and Interest payment (yes variable)

## What assumptions and calculations are made for set principal payments?

When **Set Principal Payment** is selected from the **Payment Type** menu, the payment is automatically considered to be variable. Because of this, the **Variable Payment?** menu defaults to **Yes** and the **Payment** field under **Calculation Options** displays the keyword *Varies* rather than allowing you to manually enter an amount.

You will enter the remaining **Balance** of the mortgage, as well as the **Years** and **Months** remaining in the amortization period under **Calculation Options**. NaviPlan automatically displays the month when the amortization of the mortgage is complete under **End Date**.

NaviPlan will calculate the **Payment Amount** for each interest rate period entered in the **Variable Interest Rate Schedule** and display the value directly to the right of the corresponding period. This value represents the amount from the first payment that is affected by the changing interest rate. Therefore, the overall amount will vary according to the interest rate entered for each period.

|  |                  |                          |                           |                      |                 |                                     |
|--|------------------|--------------------------|---------------------------|----------------------|-----------------|-------------------------------------|
| <b>Payment Type</b>  |                  | <b>Payment Frequency</b> |                           | <b>Link to Asset</b> |                 | <b>Interest is Tax Deductible</b>   |
| Set Principal Payment ▾  |                  | Monthly ▾                |                           | Residence ▾          |                 | <input checked="" type="checkbox"/> |
| <b>Balance As of Date</b>  | <b>Loan Date</b> | <b>Renegotiate</b>       | <b>Original Principal</b> |                      |                 |                                     |
| Mar 21 2019  | Dec 31 2018      | Refinanced               | \$125,000                 |                      |                 |                                     |
| <input type="checkbox"/> Cover any pre-retirement deficits created by these liability payments |                  |                          |                           |                      |                 |                                     |
| <b>Calculation Options</b>   |                  |                          |                           |                      |                 |                                     |
|  |                  |                          | Remaining Amortization    |                      |                 |                                     |
| <b>Variable Payment?</b>   | <b>Balance</b>   | <b>Payment</b>           | <b>Years</b>              | <b>Months</b>        | <b>End Date</b> |                                     |
| Yes  | \$125,000        | Varies                   | 17                        | 9                    | Dec 21 2036     |                                     |

Liability Details - Set Principal Payment

## What assumptions and calculations are made for the last period payment?

When Last Period Payment is selected from the Payment Type menu, you will enter the remaining Balance of the mortgage, as well as the Years and Months remaining in the amortization period under Calculation Options. NaviPlan automatically displays the month when the amortization of the mortgage is complete under End Date.

Because the value entered for the Balance represents the final balloon payment, the Payment field and Variable Payment? menu are unavailable. Under Variable Interest Rate Schedule, the Payment Amount will display as N/A.

|  |                  |                          |                           |                                     |                 |
|--|------------------|--------------------------|---------------------------|-------------------------------------|-----------------|
| <b>Payment Type</b>  |                  | <b>Payment Frequency</b> | <b>Link to Asset</b>      | <b>Interest is Tax Deductible</b>   |                 |
| Last Period Payment ▾  |                  |                          | Residence ▾               | <input checked="" type="checkbox"/> |                 |
| <b>Balance As of Date</b>  | <b>Loan Date</b> | <b>Renegotiate</b>       | <b>Original Principal</b> |                                     |                 |
| Mar 21 2019  | Dec 31 2018      | Refinanced               | \$125,000                 |                                     |                 |
| <input type="checkbox"/> Cover any pre-retirement deficits created by these liability payments |                  |                          |                           |                                     |                 |
| <b>Calculation Options</b>   |                  |                          |                           |                                     |                 |
|  |                  |                          |                           | Remaining Amortization              |                 |
| <b>Variable Payment?</b>   | <b>Balance</b>   | <b>Payment</b>           | <b>Years</b>              | <b>Months</b>                       | <b>End Date</b> |
|  | \$125,000        |                          |                           | 17                                  | 9 Dec 21 2036   |

Liability Details - Last Period Payment