

**Guidelines for  
Implementing Total Management Planning**

**Financial Management**

**USER MANUAL  
Basic Financial Model**



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# 1 OVERVIEW

## 1.1 Purpose of the Financial Model

The purpose of the Financial Model is to assist Queensland Water Service Providers (WSPs) to gain a picture of their medium-term financial position and to develop appropriate financial strategies to meet their financial objectives.

The Financial Management Implementation Guide outlines how a WSP may develop a Financial Management Plan, which would include development of a Financial Model.

Use of the Financial Model itself is not a prerequisite or mandatory requirement of the Department of Natural Resources and Mines; it is provided as a guide to how financial planning could be modelled. Individual WSPs are free to use existing financial management systems or develop and apply their own model as they see fit. Financial modelling outputs are discussed in the Financial Management Implementation Guide.

This particular model (the Basic Model) is intended for use by smaller and medium-sized WSPs. As such, the model has been designed to be as simple and user friendly as possible. It does not include consideration of advanced financial management issues such as taxation equivalence, appropriation of reserves, multi-layered financing arrangements etc. This is considered in the User Manual for the Advanced Financial Model.

## 1.2 General features of the Basic Model

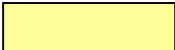



The structure and layout of the model has been designed to be as user friendly and accessible as possible. In essence, the model asks the user to enter data. This is then used to automatically develop a range of general-purpose financial reports (operating statement, balance sheet and cash flows) from which various decisions can be made regarding the longer-term viability of the WSP.

To assist a WSP develop its financial plan, the model contains a step-by-step guide. Each step takes the user to a particular sheet, which provides part of the information required to develop a comprehensive model. Once each of these steps has been completed, the WSP can check the results and modify its inputs as required.

The model includes several self-checks, which are used to indicate the robustness of the model. However, these are not intended to be ‘hold point’ in the process. ‘Failure’ of any one of these checks may not automatically indicate inadequacies in the financial model.

The financial model is NOT an accounting system. Its purpose is to define general trends in future forecasts; it will therefore not meet the strict accuracy requirements of contemporary accounting systems. Occasionally a pragmatic approach may need to be taken so that the WSP can get the ‘big picture’ rather than focusing on detail.

A colour-coding system has been used in the financial model, as explained below:

“Yellow” cells indicate that an input or decision is required from the WSP:	
“Blue” cells are automatically calculated and should not be changed:	
“Orange” cells are cells for which the WSP has an option of automation or direct entry of data:	
“Green” cells are used for title headings:	

NOTE: To ensure that local anomalies can be easily highlighted in the financial model, comment boxes have been provided at key locations throughout the model. These comment boxes provide the WSP with an opportunity to outline key assumptions at each stage of the analysis and identify key data sources (so that the model can be easily updated as required).

## **2 USING THE MODEL: A STEP-BY-STEP GUIDE**

### **2.1 The start sheet**

#### **Description**

When you open the financial model, the first sheet that presents itself should be the start sheet. Labelled 'Start Here', this sheet outlines the process for development of the financial model and contains several 'buttons' that allow you to step through the process stage by stage. Each step in the process has at least one button attached to it.

The start sheet provides a brief description of each step, a brief explanation of what the step means and what it aims to achieve, and the relevant reference sheet. Each subsequent sheet is linked to the start sheet; these means that, as you complete each step, you can return to the start sheet and proceed to the next step.

#### **What do I do here?**

You need to provide the following inputs here:

- Insert the name of the WSP in the title box provided.
- Insert the program (water supply, sewerage or irrigation) or scheme name in the title box provided. The WSP's name and the program/scheme will be automatically posted to each of the sheets in the model.
- Using the buttons provided, you can step through the financial modelling process.

### **2.2 Step 1: Identify key constraints**

#### **Description**

The first step in the process is to identify the key constraints that underpin the financial performance of the WSP. These assumptions are a summary of the key financial decisions that underpin the entire analysis. They include:

- general indicators including interest rates on cash reserves and base year for the analysis;
- capital funding decisions including the extent to which the net cost of new capital works (less subsidy) will be funded using debt and the extent to which the WSP will fund its depreciation. This decision should be based on factors such as the ratio of renewals annuity to current cost depreciation;
- financing decisions, including details on existing and future debt. The model assumes here that the WSP can enter its current debt as a single loan. In addition, the model assumes that new loans will be taken out under similar conditions. Where the financing arrangements for a WSP are more complex, the model allows the WSP to directly enter for forecast interest and redemption payments in the loans module (refer 'Loans Module' sheet).

The sheet provides an opportunity to choose one of two alternatives for the calculation of depreciation of the WSP's non-current assets. If detailed information is not available, you can ask the model to approximate the depreciation. The model does this by assuming an average useful life of 50 years for all assets, and depreciating them on a straight-line basis over this period. If more detailed information is available, you should indicate the intention to enter the detailed depreciation data (done at Step 4b).

Finally, this sheet provides a comment box. You may use this comment box to outline the rationale supporting your decisions, or to indicate the sources from which the data has been obtained. This may assist in the future updating of the model.

### What do I do here?

You need to provide the following inputs here:

- Enter the anticipated interest rate on cash balances. You can obtain this data by reference to the WSPs banking details, or it may be available in the notes to the previous year's financial accounts.
- Enter the base year for the analysis (i.e. data from the previous financial year for which the WSP has audited accounts).
- Enter an initial assumption on the extent to which the net cost of capital works will be funded using debt. For example, if a WSP has a capital works budget of \$2 million in the next year, of which \$800 000 is subsidy, what percentage of the \$1.2 million difference will be funded using debt?
- Enter an initial assumption on the extent of funding of depreciation by the WSP. Typically the extent of depreciation funding should range between 30% and 100%. Funding depreciation at or below 30% indicates that the WSP is running assets into the ground. The appropriation statement contained in the WSP's most recent annual report may provide an indication of the extent to which depreciation has been funded in the past.
- Enter the extent of existing debt. Up-to-date information may be available from the WSP's accountant, but this data should also be available from the organisation's most recent annual report (refer to the balance sheet, under 'non-current liabilities');
- Enter the term and rate of existing loans. Once again, the most up-to-date source of information should be available from the WSP's accountant or financial manager. However, you may 'synthesise' an equivalent loan and term by using the data provided in the most recent annual report. The operating statement in the annual report will state the interest cost of debt. Using this information, you can deduce an approximate loan interest rate (i.e. divide the interest expense by the loan balance). You can then either judge the loan term or synthesise an equivalent loan term using the payment (PMT) function in MS Excel.
- Enter the expected term and anticipated interest rate applying to new loans.
- The model gives you the opportunity to choose annual, quarterly or monthly loan repayments. If you do not have a clear understanding of the terms and conditions of the WSP's prospective new loans, it is suggested that you select the quarterly basis as the default.
- You now need to choose between using an approximation in the calculation of depreciation expenses or entering detailed data itself. Actual entering of detailed depreciation data is done at Step 4b.
- Finally, you may provide comments on the rationale behind the key constraints used and/or source of information used. The comment box is an optional feature designed to assist WSPs in understanding the basis for the forward projections as well as facilitating upgrade of the plan in future.

## 2.3 Step 2: Determine growth and demand projections

### Description

The growth and demand projections sheet is possibly the most labour-intensive and complex of all the input sheets. The objective of this sheet is to give WSPs the opportunity to provide estimated projections of change in a wide range of revenues and expenses. These assumptions drive the rest of the model. For example, a WSP may anticipate that the connected population will grow by 2% over the next 5 years and that the rates per customer will increase 5% above CPI over the same period. The model will then use these forecasts to determine the overall increase in total revenues earned by the WSP: i.e. change in revenue minus last year's revenue x increase in connected population (+2%) x increase in rate charges (+5%).

Note that changes in the expenditure projections do not include CPI adjustments. They are **real** changes over time.

## What do I do here?

You need to provide the following inputs here:

- Enter the estimated population and current connections.
- Enter the projected change in population over time. These figures should reflect your ‘best guess’ for changes in population. Preferably these should be consistent with projections in the WSP’s infrastructure planning.
- Provide an estimate of the projected change in flows. This is an ‘optional’ input and is provided to allow WSPs the flexibility to incorporate the projected results of their demand management strategies in the analysis. For example, if you expect that the WSP’s current demand management strategies will result in a –5% decrease in water demand in Year 1 (but no change thereafter), you would enter 5% in the first cell and zero after that). In addition, WSPs may use this data to model the financial impact of changes in the demand management strategies (i.e. What if we get a 10% reduction? What if it’s 5% every year? etc.) In this instance you would need to consider what reduction in operational expenditure will occur as a result of a 5–10% reduction in demand;
- Enter revenue and expenditure projections. These figures allow WSPs to indicate anticipated changes in a range of revenue and expense items over time. As noted above, these changes do not include CPI adjustments. As a guide, you could obtain copies of past annual reports and look at the changes in revenue and expenses achieved in the past.
- Once again, a comment box is provided to allow you the option of adding to the model notes that may explain the rationale behind the demographic or expenditure projections.

## 2.4 Step 3: Enter base year operating revenues and expenses and balance sheet data

### Description

This step in the analysis asks you to provide the current (or base year) results. The step is divided into two parts. The first stage (Step 3a) relates to the operating statement (or profit and loss statement). The second stage relates to the balance sheet. The information entered at this stage in the analysis is manipulated within the model (using the growth/demand projections provided in Step 2) to estimate a forward growth path.

Input data for this stage of the analysis will be available from the operating statement (or profit and loss statement) and balance sheet provided in the WSP’s most recent annual reports.

Where there are no separate financial statements for water supply or sewerage, use last year’s budget figures.

Once complete (i.e. after Step 7), the operating statement will provide an indication of how profitable a WSP will be in the future and whether the WSP is operating its assets in a sustainable manner. It is important to note that periodic operating deficits (or losses) do not of themselves provide a problem. However, periods of extended operating deficits indicate that the business is not being managed in a sustainable manner. The self-checks in Step 7 include a crude test of whether it is being operated in a manner unsustainable over the long term.

## What do I do here?

You need to provide the following inputs here:

- Using the information provided in the WSP’s most recent annual report (or, alternatively, more up-to-date information of the entity’s financial information management system), enter the base data into the operating statement and balance sheet. You need only enter data in the yellow cells. All other cells are calculated automatically. Where costs cannot be separated (e.g. operations versus maintenance), or where the WSP has more expenditure/revenue items than those included in the model, it is suggested that you group these figures under the most appropriate heading. Remember that you are looking for a general forward indication of the business’s projected performance, not a precise estimate of its financial position.

- When entering data in the operating statement, you will notice that there are two lines that allow you to enter data in any of the 10 years included in the analysis. These items (funds for disposal of non-current assets and abnormal and extraordinary items) are typically one-off type entries. It is anticipated that these lines would be filled out only on the rare occasion where a WSP was aware of a future abnormal gain or loss. This may occur, for example, where the WSP intends to sell assets (e.g. package sewage treatment plant) or excess inventory. As these are one-off revenues, they could not be easily included in the operating revenue of the WSP.
- Once the operating statement is completed, the model will calculate an operating surplus or deficiency for each year modelled. At this stage, you can press a button on this panel to view the ‘appropriations statement’. This is an optional function in the model. You do not need to provide input into the appropriations statement. However, some users may find it interesting to see how sums are being allocated to various capital and reserve accounts.
- In the balance sheet, you need to identify and enter the amount of cash held at the end of the preceding year and the value of the non-current assets and accumulated depreciation. These figures should all be available from the WSP’s most recent annual report.
- The model will automatically ‘balance’ the balance sheet. That is, the ‘capital account’ field is used as a balancing item to ensure that the base year is in balance. Subsequent years will balance only if all the relevant forecast sheets contain relevant data and appropriate funds in a suitable way. You are free to enter this figure directly, although it is suggested that this would be done only rarely. To ensure that you do not inadvertently change this cell, it is shaded orange; this signifies that it may be changed, but only if you are sure of what you wish to achieve.

## 2.5 Step 4: Calculate annual depreciation and renewal capital expenditure

### Description

This step has two components. The first sheet asks you to identify the scope of **replacement** capital works to be undertaken by the WSP. These works include replacement of existing assets that have failed or are otherwise at the end of their useful life.

In recognition of the fact that it is difficult to identify which assets in particular will be replaced, the model also makes provision for you to input anticipated capital works on a more generic basis (e.g. 2002/03 water main renewals: \$500 000). Unfortunately, a separate entry is required for capital works that may be carried out on different financial years. For example, if the WSP intends to spend \$500 000 on water main renewals in each year from 2002/03 to 2007/08, you would include these as five separate inputs (e.g. mains replacement Phase 1, Phase 2 etc.).

All columns need to be completed for each entry, otherwise the model will return an error. That is, for each replacement item, you must identify the estimated capital cost, anticipated year of construction, proposed useful life (i.e. design life) and subsidy (if any) available to assist the WSP to provide these works. The model includes provision for 500 lines to be entered in this sheet.

Occasionally there are grey areas where an asset’s capacity is upgraded as part of the asset replacement process. You can insert this project as either replacement or new works. Where the asset upgrade component is eligible for subsidy it is suggested that the project is included as new works.

The second component of this step is the depreciation schedule. This sheet uses straight-line methodology to estimate the annual depreciation expense for both existing and new assets.

## What do I do here?

- At Step 4a (i.e. the Replacement Capital Works Program) you need to enter the scope of anticipated replacement capital works proposed for the next 10 years. This can be done using the organisation's asset register to determine a 10-year replacement cost profile. For example, the organisation's asset register should contain the estimated replacement cost of each asset, the date the asset was constructed and either its design life or its estimated residual life. Using this information, the organisation can forecast the theoretical asset replacement cost profile. This cost profile can then be entered into the model as the anticipated replacement capital work program. The WSP may prefer to even out the replacement cost profile by having a 5-year rolling average of replacement costs.
- At Step 4a the scope of work required depends on earlier decisions to approximate or calculate depreciation on existing assets. If you have selected automatic calculation of depreciation at Step 1, the model will automatically calculate depreciation of existing assets in all years.
- However, if you elected at Step 1 to calculate depreciation manually, you need to override the formula in the orange cells with the more accurate depreciation figures. Note that, once the formula is overwritten, the 'switch' at Step 1 will no longer work.

## 2.6 Step 5: Enter new capital works program and capital funding data

### Description

The scope of this step is similar to Step 4, except that Step 5 deals with **new** rather than replacement capital works.

Step 5a asks you to input the organisation's proposed 10-year capital works program. In addition, you are asked to enter a range of information relating to the date, design/useful life and anticipated subsidy for each item of capital works.

Step 5b then asks you to consider/review how these capital works are funded.

**Important:** When you link the Step 5b button, several worksheets will flash on and off the screen for a short period. This is the result of a macro which is embedded in the model itself. What the macro is doing is copying various data from one sheet to another and calculating the anticipated subsidy funding for both the new and replacement capital works program.

## What do I do here?

- Step 5a is essentially the same as Step 4a, except for the fact that it relates to **new**, not replacement, capital works. You need to enter the organisation's forecast new capital works program onto the model provided. If you cannot identify specific works but know that a certain amount will be spent (e.g. you know that the sewerage backlog program will be \$200 000 a year for the next 5 years), then you may enter a generic project description (e.g. 'backlog sewerage — Stage 1, Stage 2 etc. '), provided that all columns are completed for each entry. Information regarding the new capital works program may be obtained from various planning reports.
- Stage 5b asks you to consider how the capital works will be funded. This includes both replacement (i.e. capital works identified in Step 4) and new (i.e. Step 5a) works. The model will automatically try to balance funding sources against capital works. That is, where sufficient reserves exist, the model will apply constrained works reserves to fund new capital works and depreciation funds to fund replacement works. Decisions made earlier regarding the percentage of debt funding (at Step 1) and anticipated subsidy (Steps 4a and 5a) will also be reflected in the capital funding decision sheet.

- The first thing to check is that the capital funding sheet balances for both new and replacement capital works. That is, the ‘new works’ total should equal the ‘funded by’ total, and the ‘replacement works’ total should equal the corresponding ‘funded by’ total. If this is not the case (i.e. if you want to change the funding mix indicated in the model), you should identify sources of funds for new and replacement works. These are indicated by the yellow rows in this table.
- You may change the funding mix by changing the ratio of debt funding to be applied to new/replacement capital works by revisiting the assumption made at Step 1. Do not change the blue cells in the capital funding statement. The higher the debt ratio, the lower will be the reliance on cash reserves such as constrained works reserve and depreciation reserves.
- In addition, you need to identify the value of replacement capital works and loan redemption incurred in the base year of the analysis. This information should be available from the organisation’s capital works program and annual report respectively.
- Once again, you may provide comments in the comment box provided. This will assist in outlining the logic supporting the funding mix suggested, as well as providing an audit trail by identifying the source of information used in the analysis.

## 2.7 Step 6: Check the ‘check’ sheet

### Description

The purpose of this sheet is to provide a list of prompts and general checks on the information provided.

First, the sheet provides a number of prompts for the user. That is, have you:

- identified all key constraints (Step 1)?
- completed the growth/demand projections (Step 2)?
- entered depreciation and replacement capital expenditure (Step 3)?
- entered the base year operating revenue and expense data (Step 4)?
- completed the new capital works budget (Step 5)?

This sheet also performs a number of automatic checks. These checks should be used with caution, however.. A negative result at any one of these checkpoints does not indicate that the business is not viable. These checks are provided as a prompt only and should not be seen as black-and-white indicators. Where the checks indicate a problem, you should investigate the reason for the negative indicator (refer Step 7). You may be able to provide an explanation for the reason the indicator returned a negative result, and the business strategies supporting or addressing the issue.

Comments can be entered in the comment box.

### What do I do here?

You should complete the checklist provided and review the automatic checks conducted by the model. If appropriate, you may provide comments supporting or explaining the organisation’s financial strategy.

## 2.8 Step 7: Reassessment of projections

### Description

Where the checks in Step 6 indicate that the business is not viable, or where the model identifies particular unexpected problems in the organisation, you should review the assumptions that underpin the model. Development of the final financial model is likely to be an iterative process, with several of the original assumptions being modified to indicate how the organisation may attain a financially viable position. This process of iteration may involve repeating Steps 1–6 several times.

### **What do I do here?**

You should repeat Steps 1–6 above, refining the financial strategies of the organisation (as witnessed by the inputs to the financial model) until you arrive at a financially viable position.

Section 3 of this manual, ‘Troubleshooting’, should give you some ideas on how to alter the assumptions to improve the financial forecast of the organisation.

## **2.9 Step 8: Check the financial performance indicators**

### **Description**

The penultimate stage in the analysis includes a review of a range of financial performance indicators, calculated using the data provided. Organisations may compare their current KPIs with projected future KPIs to see whether the financial model supports their broader organisational improvement strategies. The KPIs included in the model have been selected from a range of indicators that are used in the water industry and for which ready comparison between organisations is possible.

### **What do I do here?**

You should enter the organisation’s target KPI, where appropriate, and compare the projected change in KPI against the organisation’s broader strategy. Ideally, the projected KPIs should indicate improvement in the operation of the business (i.e. calculated KPIs may converge towards the target level or may indicate improvement over time). Where this is not the case, you may choose to once again review the inputs to the model until you arrive at an acceptable financial strategy.

## **2.10 Step 9: Graphs**

### **Description**

This is the final stage in the analysis. This step provides graphs of a range of key indicators. These graphs are a simplified means of communicating projected changes in the financial performance of the organisation over time.

### **What do I do here?**

The graphs are provided as an output of the process. You do not need to take any direct action unless the graphs indicate an anomaly, or a position that does not agree with the business objectives (e.g. steadily decreasing cash reserves). If that is the case, you may revisit appropriate variables to modify the analysis until an acceptable financial strategy is attained.

Increasing revenues well above CPI may be a difficult decision for many WSPs. You may need to consult senior management in relation to the feasibility of this option.

## **3 TROUBLESHOOTING**

The objective of this section of the manual is to provide guidance to users on some of the more common problems and their possible solutions. This analysis does not cover all problems, nor does it provide rigid rules for addressing problems as they arise. The solutions provided are generic suggestions which may or may not be appropriate for an individual WSP.

### **3.1 Common problems and possible solutions**

#### **The cash flows are negative**

This is the most serious problem that may be encountered by a WSP. Negative cash flows indicate that the business may be unable to meet its bills when they fall due. Without some form of assistance, such a problem could lead to default and business failure.

The first step in the process is to identify when and by how much the cash flows are negative. Check the cash flow sheet to determine the timing and magnitude of the problem.

The first thing you should do is check the operating cash surplus in the cash flow statement. If the operating cash flows are negative, it means that the expenses are greater than the reserves. To correct for this, the organisation must either reduce its costs or increase its revenues. These changes can be made at the growth/demand projections sheet (Step 2).

Often a negative cash flow may be related to the capital works program of a WSP. If the negative cash flow coincides with a relatively large capital works program, then you may review the debt funding decision (Step 1). The higher the debt funding percentage, the lower is the organisation's dependence on accumulated cash reserves to fund new capital works.

A third alternative may be to delay capital works to decrease the cash demands on the organisation.

Typically, correction of a negative cash flow will require a combination of each of the above strategies.

#### **The balance sheet does not balance**

In this instance, you should first check the initial value of the capital account. This orange cell normally calculates itself. If, however, this cell has been altered, the balance sheet may not balance in Year 1. If the totals for equity and net sections do not match in the first year, change the 'capital account' cell to bring these into line. If the balance sheet is still out of balance, there may be a broader problem.

Given the structure of the model, this problem probably indicates an imbalance in the capital funding sheet. Check the capital funding sheet (Step 5) to ensure that the value of new works and associated funding are the same. Also check that the replacement works and funding are also the same. If either figure is out of balance, you need to review the capital works funding decisions to bring the totals back in line.

In the case of replacement works, this may be achieved by increasing the depreciation funds (by increasing the percentage of depreciation funding at Step 1), increasing the percentage of debt, or using other reserves.

In the case of new works not matching against funding, you may achieve a balance by delaying capital works or funding capital works from other sources.

## **4 MANUAL UPDATES**

The current version of the model to which this user manual relates is Version 2.0. Updates to the model and user manual will be undertaken on receipt of feedback from users.

Updates of the model will be issued to WSPs via email.