

**Guidelines for
Implementing Total Management Planning**

Financial Management

**USER MANUAL
Advanced Financial Model**

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1 OVERVIEW

1.1 Purpose of the model

The purpose of the Financial Model is to help Queensland Water Service Providers (WSPs) gain a picture of their medium-term financial position and 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 Advanced Model) is intended for use by larger WSPs which are commercialised or otherwise operating on a commercial basis. The model therefore includes a commercially structured profit and loss statement that includes taxation equivalent and dividend payments.

1.2 General features of the model

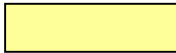



The structure and layout of the model has been designed to be as user friendly and accessible as possible, yet still retain a strong commercial focus. In essence, the model asks the user to enter data which is then used to automatically develop a range of general-purpose financial reports: profit and loss (operating) statement, balance sheet and cash flows. From these, various decisions can be made regarding the commercial performance of the organisation and longer-term viability of the WSP.

While it is envisaged that most of the largest WSPs will have the resources necessary to develop their own model, the model is structured to provide a step-by-step guide to develop a functional financial model. Each step takes the user to a particular sheet that provides part of the information required to develop a comprehensive model. Once each of these steps have been completed, the WSP can then 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. It is important to note that these checks relate to general parameters of commercial operation and do not relate to any additional performance criteria. That is, the model checks to see if the business is viable but does not automatically check to see if a targeted return on investment is achieved.

The financial model is NOT an accounting system. Its purpose is to define general trends in future forecasts; it therefore will 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:	

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. This feature is designed to ensure that the assumptions underpinning the model are clearly stated, and to allow the model to be easily updated.

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’ which allow you to step through the process stage by stage. Each step in the process has at least one button attached to it.

The 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; this 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, 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. Large organisations may develop multiple models for each of their major water/sewerage/irrigation schemes
- Using the buttons provided, you can now 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 on which the entire analysis is based. They include:

- general indicators, including interest rates on cash reserves and base year for the analysis;
- the planned extent to which depreciation may be funded. This decision should be based on factors such as the ratio of renewals annuity to current cost depreciation;

- the organisation's weighted average cost of capital (WACC) (i.e. cost and proportion of debt and equity used by the business); and
- 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 for the WSP financial modeller to choose one of two alternatives for the calculation of depreciation of its non-current assets. Where detailed information is not available, the model can be asked to approximate the depreciation. It does this by assuming an average useful life of all assets of 50 years and depreciating the assets in a straight-line basis over this period.

NOTE: Such an approach is unlikely to be acceptable for audit purposes. However, as explained in Section 1.2 above, the financial model is not an accounting system. 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. WSPs can use this comment box to outline rationale supporting their 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. This data may be obtained by reference to the WSPs banking details or 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 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% may indicate 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 your organisation's WACC. This information will most probably be available only from the financial manager.
- Enter the extent of existing debt. This data should also be available from your organisation's most recent annual report (refer the balance sheet, under 'non-current liabilities' and check the 'notes to the accounts' for this item). However, up-to-date information may be available from the WSP's accountant.
- Enter the term and rate applying to existing loans. Once again, the most up-to-date source of information should be available from your 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 (in dollar terms). 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 an opportunity to choose between annual, quarterly and monthly loan repayments for new loans. 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. You enter the detailed depreciation data 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 help the WSP understand the basis for the forward projections as well as facilitating upgrades 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. It provides the opportunity for the WSP to make estimated projections of change across 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; however, water use will drop by 3% each year and the rates per customer will increase by 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 – last year's revenue x increase in connected population (+2%) x increase in rate charges (+5%) x change in flows (-3%)).

NOTE: 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:

- Enter the estimated current population and current number of connections.
- Enter the projected change in population over time. These figures should reflect the WSP's 'best guess' for changes in population. Preferably the figures should be consistent with projections in the WSP's infrastructure or strategic 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 a WSP expected that their current demand management strategies will result in a -5% decrease in water demand in Year 1 (but no change thereafter), they would enter 5% in the first cell and zero after that). In addition, the WSP 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 the WSP 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 the WSP 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, look at the changes in revenue and expenses achieved historically, and adjust these for inflation.
- Once again, a comment box is provided to allow WSPs the option of adding notes to the model which 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 profit and loss (or operating) statement. The profit and loss statement is divided into two main components. First is the revenue and expenses which arise from the organisation's operating activities (i.e. the services provided on a day-to-day basis). The second component includes abnormal (or capital) adjustments. This division allows management to clearly identify how well its operations are performing without the 'bias' of abnormal revenue/expenses.

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.

The data to complete this stage of the analysis will be available from the profit and loss (or operating) statement and balance sheet provided in the WSP's most recent annual report(s).

Once the model is complete (i.e. after Step 7), the profit and loss (or operating) statement will provide an indication of how well a commercialised WSP will meet its financial targets in the future and whether the WSP is operating its assets 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.

Please note that taxation expense is calculated on operating surplus only. Capital revenues (including infrastructure charges) are not included in the calculation. Therefore this treatment may not necessarily be consistent with current accounting convention.

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(s) (or, alternatively, more up-to-date information of its financial management information system), enter the base data into the profit and loss (or operating) statement and balance sheet. You need only enter data in the yellow cells (including base year tax expense). 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 'Abnormal (Capital) Adjustment' section of the profit and loss statement, you will notice that there are two lines that allow you to enter data in any of the 20 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.
- Once the profit and loss statement is completed, the model will calculate an operating profit/loss and a total operating profit after tax and including abnormals. The first figure illustrates the profitability of the basic business. The second includes the full range of capital adjustments 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.
- In the balance sheet, you need to identify the value of 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 forecast sheets contain relevant data and appropriate funds in an appropriate way. You are free to enter this figure directly, although it is suggested that this be done only by the Financial Manager. To ensure that you do not inadvertently change this cell, it is shaded orange — to signify 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 in 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 (yellow) 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. Once data is entered into the yellow cells, the model will automatically enter the data in the 'blue' cells in the year in which the expense is incurred.

Occasionally there are grey areas where an asset's capacity is upgraded as part of the asset replacement process. This project can be inserted 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 (Step 4b) 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 20 years. This can be done using the organisation's asset register to determine a 20-year replacement cost profile. For example, the organisation's asset register should contain the estimated replacement cost of each asset, the date when the asset was constructed and either its design life or 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 4b the scope of work required will depend on earlier decisions to approximate or calculate depreciation on existing assets. If you 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 that of Step 4, except that Step 5 deals with new rather than replacement capital works.

Step 5a asks you to input the organisation's proposed 20-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 (both new and replacement) are funded.

Important: When you hit 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 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 that it relates to **new**, not replacement capital works. You are required to enter the organisation's forecast new capital works program into the yellow cells in 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. However, these 'automated' decisions will adjust as you enter additional data. That is, the model may initially indicate that 100% of funds for new works will be drawn from constrained works reserve; however, if you decide that the asset will be 50% funded by debt, the constrained works reserve account will automatically adjust to reflect this change. Decisions made earlier regarding the level of 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. To assist in this process, 'balance check' lines have been included in the table. These should balance to zero. 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.
- The most obvious change in funding should be consideration of debt to fund the proposed capital works program. The model relies on you, the user, to identify the extent to which the proposed capital works will be debt funded.
- You may change the funding mix by changing the amount of funding to be applied to new/replacement capital works. 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.

The sheet provides a number of prompts. 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)?

For convenience, the model includes an additional ‘button’ next to each of these self-checks to take you directly to the relevant sheet as required.

This sheet also performs a number of automatic checks. These should be used with caution, however. A negative result at any one of these check points 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.

The principal check among this list is the ‘cash flow’ check. A consistently negative cash flow indicates that the business may have a problem in meeting its bills. This may be overcome through application of internal loans or greater reliance on debt funding of the proposed capital works program (Steps 4 and 5).

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 problems which the organisation does not expect, 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 an 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’, may 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 indicate whether the financial model supports their broader organisational improvement strategies. The KPIs included in the model have been selected from a range of indicators used in the water industry, 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 derive 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. No direct action is required of you 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 can 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

This section of the manual provides 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 needs to 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 can review the debt funding decisions for both new and replacement works (Step 5b). The greater the reliance on debt funding, the lower is the organisation's dependence on accumulated cash reserves to fund new capital works; although this logic has obvious limitations in extreme circumstances.

A third alternative may be to delay capital works to decrease the cash demands on the organisation or internal funds transfer customer service obligations (CSOs) between programs.

Typically, correction of a negative cash flow may 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 asset 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 5b) to ensure that the value of new works and the 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), by increasing the percentage of debt, or by using other reserves.

In the case of new works not matching against funding, you can 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.