Instructions for Using the Rates Impact Model

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# Instructions for Using the Rates Impact Model

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The Purpose of the Model

The model is provided to assist Councils to model the impact of property valuation increases and the effect this will have on rates to be raised. In particular, it identifies the number of properties with the potential to receive an increase in next year’s rates of greater than a specified percentage over the rates paid in the current financial year. It will also calculate the quantum of the potential rate revenue that will need to be redistributed, if the increase in rates is capped at that percentage, the minimum rate or fixed charge.

Before using the model, a Council must:

- determine its rate revenue required for the next financial year; and
- model in its own rates system the likely rates in the dollar for various types of properties and any change in differential rates.

This information will provide a base for operating the model.

Further reading on the Rates Impact Model is contained in the document Rate Setting – Improvement Opportunities 2003/04

Any queries or questions on the operation of the models should be directed to:

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Note: It is expected that a person with some training or experience in Microsoft Excel will operate the model.
Step 1 – Obtaining the Rating Data

Obtain a complete listing of every property from your property database, as a Microsoft Excel spreadsheet or a comma separated variable file.

Ensure that you have the listed essential information for each property, preferably in the following order:

1. The property ID (your billing code or the V-G’s assessment number).
2. If you are using land use code as the basis for rating – the land use code OR if you are using locality as the basis for rating – the locality code OR if you are using a mix of land use and locality – the rate code.
3. The current valuation.
4. The new valuation.
5. An identifier for a contiguous property and/or a single farm enterprise. (Note this should only be attached to the second or subsequent properties – but don’t worry too much if it is set for each of the properties – we are developing a model, not the exact situation that will apply when the rates are raised.)
6. Where a property receives a rebate, the rebate percentage.
7. Where the property is non-rateable, an identifier for each non-rateable property.
8. The rates raised for the current financial year – that is, the rates calculated minus any rebates.

(Important Note: Do not reduce the calculated rates by any pensioner or self-funded retiree concession.)

If you have obtained a comma separated variable file, import the file into Microsoft Excel and carefully convert it to an Excel spreadsheet, ensuring that no essential data is lost.

Give the spreadsheet with the property data a meaningful name – e.g. “2003-04 Rates Modelling - Rating Data”.

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Step 2 – Importing the Data into the Model

There are four modelling spreadsheets:
- Minimum Rate – Land Use Code;
- Minimum Rate - Locality;
- Fixed Charge – Land Use Code; and
- Fixed Charge – Locality.

Select the appropriate modelling spreadsheet for your particular rating structure. (Note: If you are using a mix of locality and land use code, use a ‘locality’ spreadsheet.)

Each of the modelling spreadsheets has six worksheets:
- Rates Model;
- Rebates and Contiguous;
- New Properties;
- Non-Rateable;
- Modelling Data; and
- Copy – Modelling Data.

Open the modelling spreadsheet and immediately rename it – e.g. “2003-04 Rates Modelling”. This ensures that the original spreadsheet is still available, should anything go wrong with your modelling.

Note: As you develop your spreadsheet model it is important to save it regularly. There are two reasons for this:
1. You will minimise the risk of loss of any work you do on the model.
2. For councils with many properties, the model will become quite large – maybe over 20Mb. If you don’t save regularly, your computer is holding the current data your work has created and any previous data since the last save. This may create difficulties if you have a small swap file.

Copy the contents of the spreadsheet with the property data and insert it into the worksheet entitled ‘Modelling Data’. Save and close your property data spreadsheet, so that it will be available should any problems arise with the modelling spreadsheet.

Save the modelling spreadsheet.
Step 3 – Arranging the Data

In the worksheet entitled ‘Modelling Data’ arrange the data into the correct order, if it has not already been provided in this order. First, for each of the columns with the data you require, give them the following headings:

- **Property ID** – for either the Billing Number or the Valuer-General’s Assessment Number, whichever you are going to use;

- **EITHER**
  - *LG Land Use* – for the Local Government land use code OR
  - *Locality* – for the locality code for the locality code OR
  - *Rate Code* – if you are using a mix of land use code and locality;

- **Current Value** – for the property value you used to raise rates for the current financial year;

- **New Value** – for the property value that will be used to raise rates next financial year;

- **EITHER**
  - *Contiguous?* – for the column that contains the identifier for contiguous land in the minimum rate models OR
  - *Contiguous/Single Farm Enterprise (SFE)?* – for the column that identifies either contiguous land or single farm enterprises in fixed charge models;

- **Rebate %** - for the column that contains the percentage rebate applicable to a particular property;

- **Non-Rateable** – for the column that identifies properties which are not rateable; and

- **Rates Raised** – for the column containing the current financial year’s rates.

Next, sort the columns into the following order:

- Column A - **Property ID**;
- Column B - **LG Land Use** or **Locality** or **Rate Code**;
- Column C - **Current Value**;
- Column D - **New Value**;
- Column E - **Contiguous?** or **Contiguous/SFE?**;
- Column F - **Rebate %**;
- Column G - **Non-Rateable**; and
- Column H – **Rates Raised**.
Delete any other data. The best way to do this is to select the relevant columns, right click the mouse and select ‘Delete’ to delete the columns.

Copy the contents of the ‘Modelling Data’ worksheet into the ‘Copy – Modelling Data’ worksheet. This provides an immediate copy of the data you have carefully sorted and arranged should some problem occur when transferring data from the ‘Modelling Data’ worksheet to other worksheets.

Return to the ‘Modelling Data’ worksheet to commence the next step.

**Save the modelling spreadsheet.**
Step 4 – Purifying the Data

The next step is to ensure that the data is in a suitable format for transfer to the appropriate part of the spreadsheet. It is important to ensure that the data is in the right format for interpretation by the formulas that drive the model.

First, for all properties that are new for the next financial year, the value shown in the column for ‘Current Value’ should be either 0 or blank. It may show ‘N/A’ or some other alphabetic identifier. To change an alpha identifier do the following:

- Click on the header for Column C – ‘Current Value’, thus selecting all the values in that column;
- Left click on the word ‘Edit’ in the Menu bar at the top of the spreadsheet;
- Click on ‘Replace’ and a dialogue box will appear;
- In the ‘Find what:’ text box, type the alphabetic identifier you want to replace exactly as it appears and tab to the ‘Replace with:’ text box;
- Leave the ‘Replace with:’ text box empty and click on ‘Select All’; and
- Close the dialogue box.

Save the modelling spreadsheet.

Next, the identifier for a contiguous property must be Y. (Note: In a fixed charge model it must be Y for contiguous properties and single farm enterprises.) Whatever identifier is used (and in some cases it can be more than one identifier) carry out the following:

- Click on the header for Column E – ‘Contiguous?’ thus selecting all the values in that column;
- Left click on the word ‘Edit’ in the Menu bar at the top of the spreadsheet;
- Click on ‘Replace’ and a dialogue box will appear;
- In the ‘Find what:’ text box, type the identifier you want to replace exactly as it appears in the column and tab to the ‘Replace with:’ text box;
- In the ‘Replace with:’ text box insert Y, click on ‘Replace All’; and
- Close the dialogue box.

You may need to carry out this action several times if you have several different identifiers for contiguous properties or single farm enterprises.

Save the modelling spreadsheet.
Next, the rebate percentage must be expressed as a percentage. It may simply be shown as a number – e.g. 50, 75, 100. To correct this:

- Click on the header for Column F – ‘Rebate %’, thus selecting all the values in that column;
- Left click on the word ‘Edit’ in the Menu bar at the top of the spreadsheet;
- Click on ‘Replace’ and a dialogue box will appear;
- In the ‘Find what:’ text box, type the number you want to replace exactly as it appears in the column and tab to the ‘Replace with:’ text box;
- In the ‘Replace with:’ text box insert the number with the % sign, click on ‘Replace All’; and
- Close the dialogue box.

Repeat until all values are expressed as percentages.

**Save the modelling spreadsheet.**

Finally, either the land use code OR the locality or rate code must be formatted as follows (NB: The nine land use codes are defined in the Local Government (General) Regulations 1999):

- The nine land use codes must be expressed as LUC 1, LUC 2, etc., through to LUC 9, where LUC 1 means Residential, LUC 2 Commercial – Shop through to LUC 9 meaning Other.
- There are 20 locality codes available – LOC 1 to LOC 20. You may decide what they each mean, but they must appear as LOC 1 etc.
- Click on the header for Column B – ‘Land Use Code’ OR ‘Locality’, thus selecting all the values in that column;
- Left click on the word ‘Edit’ in the Menu bar at the top of the spreadsheet;
- Click on ‘Replace’ and a dialogue box will appear;
- In the ‘Find what:’ text box, type the land use code or locality identifier that you want to replace exactly as it appears in the data record and tab to the ‘Replace with:’ text box;
- In the ‘Replace with:’ text box insert the relevant land use code (LUC 1 etc.) or locality code (LOC 1 etc.), click on ‘Replace All’; and
- Close the dialogue box.
- Repeat until all land use codes or locality codes have been converted to LOC 1 to 9 OR LOC 1 to 20.

**Save the modelling spreadsheet.**
Step 5 – Moving the Data

Non-Rateable Properties

The first data to move from the ‘Modelling Data’ worksheet is the data set for non-rateable properties. Sort the data by:

- Selecting the header for Columns A to H – this ensures that every record is selected;
- Left click on the word ‘Data’ in the Menu bar at the top of the spreadsheet;
- Click on ‘Sort’ and a dialogue box will appear (see Picture 1);
- Select ‘Non-Rateable’;
- Click on ‘OK’;
- All the non-rateable properties will now appear either as the first rows or last rows of the spreadsheet.

Save the modelling spreadsheet.

The non-rateable properties are now in a form for removal from the data set and inserted into the worksheet entitled ‘Non-Rateable’.
CAUTION

Before doing this, check to see how many properties are involved. If there are more than 5,000 non-rateable properties you will need to increase the number of available rows in the ‘Non-Rateable’ worksheet, before the row in which data is totalled.

Do this, in the ‘Non-Rateable’ worksheet:
• by selecting the row identifier (the number to the left of the row) for Row 2, and move the mouse down the row identifiers until you are past the totalling area, initially at Row 5003, but visible because a number of rows have been hidden; and
• right-click the mouse and select ‘Insert’ from the drop-down menu.

This will more than double the number of rows available.

You are now ready to remove the non-rateable properties from this data set and transfer them to the ‘Non-Rateable’ worksheet. To do this:
• Click on the first cell of the non-rateable properties, in Column A;
• Move the mouse to the last cell of the non-rateable properties, in column H;
• Right click and select ‘Copy’ from the drop down list;
• Click on the tab for the ‘Non-Rateable’ worksheet;
• Select cell A2 with a right click;
• Select ‘Paste’ from the drop down list and click on it to insert the data into the ‘Non-Rateable’ worksheet;
• Return to the ‘Modelling Data’ worksheet, select the rows that you copied the data from by selecting the first row number (to the left of the row) and moving the mouse to the last row number;
• Right click within the highlighted area, select ‘Delete’ and the empty rows will be deleted;
• At this point delete Column G – ‘Non-Rateable’ as it has served its purpose. Simply right click on the column identifier, G, and select ‘Delete’ – this will ensure all data is deleted; and
• Return to the ‘Non-Rateable’ worksheet – Columns E to H are not required and may be deleted by selecting the column identifiers, right clicking and selecting ‘Delete’.

Save the modelling spreadsheet.
New Properties
The next data set to move from the ‘Modelling Data’ worksheet is the data for new properties. Sort the data by:
- Selecting the header for Columns A to G – this ensures that every record is selected;
- Left click on the word ‘Data’ in the Menu bar at the top of the spreadsheet;
- Click on ‘Sort’ and a dialogue box will appear (see Picture 1);
- Select ‘Current Value’;
- Click on ‘OK’;
- All the new properties should now be the last rows of the spreadsheet, with either 0 or blanks;

The new properties are now ready be removed from the data set and inserted into the ‘New Properties’ worksheet.

CAUTION
Before doing this, check to see how many properties are involved. If there are more than 5,000 new properties you will need to increase the number of available rows in the ‘New Properties’ worksheet, before the row in which data is totalled.

Do this, in the ‘New Properties’ worksheet:
- by selecting the row identifier (the number to the left of the row) for Row 2, and move the mouse down the row identifiers until you are past the totalling area, initially at Row 5027 (Row 5038 for ‘Locality’ models), but visible because a number of rows have been hidden; and
- right-click the mouse and select ‘Insert’ from the drop-down menu.

This will more than double the number of rows available.

To move the data:
- Click on the first cell of the new properties, in Column A;
- Move the mouse to the last cell in column F of the new properties – note that column G will be empty for new properties as there were no rates raised for the current year (as will column C – Current Value);
- Right click and select ‘Copy’ from the drop down list;
- Click on the tab for the ‘New Properties’ worksheet;
Select cell A26 in a land use code model (OR cell A37 in a locality model) with a right click;

Select ‘Paste’ from the drop down list and click on it to insert the data into the ‘New Properties’ worksheet;

Delete Column C as it has no values in it

Return to the ‘Modelling Data’ worksheet, select the rows that you copied the data from by selecting the first row number (to the left of the row) and moving the mouse to the last row number;

Right click within the highlighted area, select ‘Delete’ and the rows will be deleted.

Save the modelling spreadsheet.
Rebateable and Contiguous Properties (including Single Farm Enterprise)

The next data set to move from the ‘Modelling Data’ worksheet is the data set for properties that receive a rebate or are contiguous properties or are single farm enterprises. (Note: The principal property in either a set of contiguous properties or a single farm enterprise should not be included.) Sort the data by:

- Selecting the header for Columns A to G – this ensures that every record is selected;
- Left click on the word ‘Data’ in the Menu bar at the top of the spreadsheet;
- Click on ‘Sort’ and a dialogue box will appear (see Picture 1);
- Select ‘Rebate %’ as the first sort selection;
- Select ‘Contiguous?’ OR ‘Contiguous/SFE?’ as the second sort selection, to be sorted in ‘Descending’ order;
- Click on ‘OK’;
- All the rebateable and contiguous (or single farm enterprise) properties will be the first rows of the spreadsheet.

The rebateable and contiguous (or single farm enterprise) properties are now ready to be removed from the data set and inserted into the ‘Rebates and Contiguous’ worksheet.

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**CAUTION**

Before doing this, check to see how many properties are involved. If there are more than 5,000 rebateable and contiguous properties you will need to increase the number of available rows in the ‘Rebates and Contiguous’ worksheet, before the row in which data is totalled.

Do this, in the ‘Rebates and Contiguous’ worksheet:
- by selecting the row identifier (the number to the left of the row) for Row 2, and move the mouse down the row identifiers until you are past the totalling area, initially at Row 5074 (Row 5083 for ‘Locality’ models), but visible because a number of rows have been hidden; and
- right-click the mouse and select ‘Insert’ from the drop-down menu.

This will more than double the number of rows available.
To move the properties:

- Click on the first cell of the rebateable and contiguous (or single farm enterprise) properties, in Column A;
- Move the mouse to the last cell of the rebateable and contiguous (or single farm enterprise), in column G;
- Right click and select ‘Copy’ from the drop down list;
- Click on the tab for the ‘Rebates and Contiguous’ worksheet;
- Select cell A26 in a land use code model (OR cell A37 in a locality model) with a right click;
- Select ‘Paste’ from the drop down list and click on it to insert the data into the ‘Rebates and Contiguous’ worksheet;
- Return to the ‘Modelling Data’ worksheet, select the rows that you copied the data from by selecting the first row number (to the left of the row) and moving the mouse to the last row number;
- Right click within the highlighted area, select ‘Delete’ and the empty rows will be deleted;
- Delete Columns E (Contiguous? OR Contiguous/SFE?) and F (Rebate %), by selecting the column headers, right clicking and selecting ‘Delete’ from the drop-down box.

Save the modelling spreadsheet.
The Balance of the Properties
The properties that are left in from the ‘Modelling Data’ worksheet will be the bulk of the property database and they may now be moved to the ‘Rates Model’ worksheet.

CAUTION
Before doing this, check to see how many properties are involved. If there are more than 60,000 properties you will need to increase the number of available rows in the ‘Rates Model’ worksheet, before the row in which data is totalled.

Do this, in the ‘Rates Model’ worksheet:
• by selecting the row identifier (the number to the left of the row) for Row 2, and move the mouse down the row identifiers until you are past the totalling area, initially at Row 60424 (Row 60435 for ‘Locality’ models), but visible because a number of rows have been hidden; and
• right-click the mouse and select ‘Insert’ from the drop-down menu.

This will provide the maximum number of rows available, about 65,400.

To move the properties:
• Click on the first cell of the remaining properties, in Column A;
• Move the mouse to the last cell of the remaining, in column E;
• Right click and select ‘Copy’ from the drop down list;
• Click on the tab for the ‘Rates Model’ worksheet;
• Select cell A26 in a land use code model (OR cell A37 in a locality model) with a right click;
• Select ‘Paste’ from the drop down list and click on it to insert the data into the ‘Rates Model’ worksheet;
• Return to the ‘Modelling Data’ worksheet, select the rows that you copied the data from by selecting the first row number (to the left of the row) and moving the mouse to the last row number;
• The ‘Modelling Data’ worksheet should now be empty of data, except for the column headers.

Save the modelling spreadsheet.
Step 6 – Generating the Model

Data and Formula Insertion
In each of the four models, there are data to be inserted and formulas to be copied for the effective operation of the model. (Note: Other formulas are built into the models that do not require any further action on behalf of the Council).

The data to be inserted are:
- The rates in the dollar used for the current financial year and proposed for the next financial year;
- The minimum rate or fixed charge used for the current financial year and proposed for the next financial year; and
- The target cap for the rate increases for the next financial year.

In the two Land Use Code models, data must be included as follows:
- Current year rates in the dollar – in cells E4 to E12, in the ‘Rates Model’ worksheet – (e.g. in the format 0.007658);
- Next year rates in the dollar - in cells I4 to I12, in the ‘Rates Model’ worksheet;
- Current year fixed charge or minimum rate – in cell E18;
- Next year fixed charge or minimum rate – in cell I18; and
- The target percentage rate cap – in cell O18 (e.g. 15 for 15%)

In the two Locality models, data must be included as follows:
- Current year rates in the dollar – in cells D4 to D23, in the ‘Rates Model’ worksheet – (e.g. in the format 0.007658);
- Next year rates in the dollar - in cells H4 to H23, in the ‘Rates Model’ worksheet;
- Current year fixed charge or minimum rate – in cell E29;
- Next year fixed charge or minimum rate – in cell I29; and
- The target percentage rate cap – in cell O29 (e.g. 15 for 15%)

Save the modelling spreadsheet.
IMPORTANT NOTE

For large data sets, care must be taken in copying formulas. One column at a time, saving in between each copy, will be less frustrating than continually running out of memory trying to copy every column at once. The calculation load of calculating many cells at once may exceed the limit of your swap file.

Additionally, be careful when copying not to copy over the cells that total data – ensure that you only copy formula where they are required!

In the two Land Use Code models, formulas must be copied as follows:
- In the ‘Rates Model’ worksheet, cells I26 to Q26 must be copied down into every row that has a property record;
- In the ‘Rebates and Contiguous’ worksheet, cells K26 to U26 must be copied down into every row that has a property record; and
- In the ‘New Properties’ worksheet, cells F26 to I26 must be copied down into every row that has a property record.

In the two Locality models, formulas must be copied as follows:
- In the ‘Rates Model’ worksheet, cells I37 to Q37 must be copied down into every row that has a property record;
- In the ‘Rebates and Contiguous’ worksheet, cells K37 to U37 must be copied down into every row that has a property record; and
- In the ‘New Properties’ worksheet, cells F37 to I37 must be copied down into every row that has a property record.

Save the modelling spreadsheet.
Interpreting the Results

Entering the data and copying the formulas enables the calculation of the impact of movements in property values and on rates to be raised for the forthcoming year. In particular, it identifies the number of properties with the potential to receive an increase in next year’s rates of greater than a specified percentage over the rates paid in the current financial year. It will also calculate the quantum of the potential rate revenue that will need to be redistributed, if the increase in rates is capped at that percentage, the minimum rate or fixed charge.

The spreadsheets do this automatically and the results are seen in the ‘Rates Model’ worksheets – in cells P16 (total properties with an increase greater than the target) and P21 (total amount that needs to be redistributed to other properties if rate cap implemented) in Land Use models and in cells P27 and P32 in Locality models.

If rate capping is being considered, the amount that needs to be redistributed is a guide only and does not take into account the impact of pensioner and other concessions. Neither does it take account of the limits a particular Council may put on which properties may have their rates capped.

What it does suggest is that if the amount to be redistributed from a rates cap equals 1% of proposed rate revenue, then rates in the dollar may need to be raised about 1% to achieve such a redistribution, while capping increases at the percentage set by council. (Note: The amount may need to be slightly higher than 1% to cater for those properties that may be pushed above the cap by the increase in rates in the dollar.)

Scenario 1

In reviewing the output from the model you note that the amount to be redistributed is a significant portion of the rate revenue, with many affected properties.

It is likely that you have set the cap too low.

For example, if you are looking for an increase in rate revenue of 7%, and you set a cap at 10% this is a likely outcome.

You need to set a cap that is realistic. It is not the intent of the cap that ratepayers with property increase receive no increase in rates payable. The intent is to minimise the impact so that the increase in rates payable is within the financial capacity of the ratepayer.

Scenario 2

In reviewing the output from the model you note that the amount to be redistributed is very small, with application to few ratepayers, yet you know that there are four or five times as many properties with large increases.
It is likely that you have set the cap too high.

For example, if the average increase in valuation in the areas affected by sudden increase in value is 35% and you set a cap at, say, 30%, this is a likely outcome.

It is important to set a cap that will provide appropriate relief from large increases in valuation. The determination of what is appropriate relief is up to the Council, but if it is so small that it has little impact in reducing the increase in rates payable, it is unlikely to be perceived as appropriate by the ratepayers.