Works Selection

Version 2
30th June, 2011

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Notes to the Second Edition

The document has been revised after input from ARRB.

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CHAPTER 1

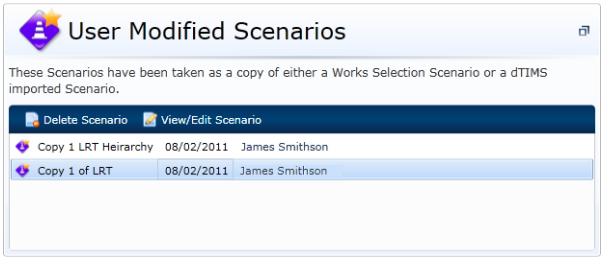
Works Selection Overview

You use **RAMM Works Selection** to plan your programme of works for your Network.

First you create and run a Scenario to produce a recommended Treatment programme based on parameters and options which match your Network data and maintenance requirements. You can create Scenarios for as little as the next twelve months or for the next twenty years.

You can then view, adjust, report and graph the projected Treatments, Treatment Costs and Condition data (where applicable).

When you are satisfied that the Scenario of recommended Treatments is the optimum, you set the Scenario as the Committed Works Programme.



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Introduction to Works Selection

You use **RAMM Works Selection** to generate your own programme for the maintenance and renewal of your Road Network.

Create Treatment Lengths

You collect Condition data for your Roads using **RAMM** Assessment. You then use Treatment Length Dynamic Segmentation to create your Treatment Lengths. The summarised Condition data, and other data such as traffic volumes is then used to:

- recommend Treatments
- calculate the cost of those Treatments
- in the case of dTIMS, project future Condition data.

Treatment Parameter Values

There are parameters you can configure to ensure your proposed Programme of Works matches your Network requirements. A parameter example could be the Roughness threshold to trigger a Resurface on a sealed Rural Road.

When you are running the process to generate an indicative set of required Treatments, you will want to set optional criteria so that some combinations of Condition parameters are taken into account and others are ignored.

The Script containing the logic used to determine the need for Treatment, will contain variables. You will want to set values for these which match your Network.

You may also set your own Treatment Cost Resurface, Rehabilitation and Reconstruction cost values. These will be used in the recommended Treatment calculations.

Default Values

There may be aspects of your Condition data which are missing or are too old for **RAMM** Assessment. In this case you configure Defaults for the data. You then use these Defaults in dTIMS Export or in the running of Works Selection Scenarios.

Scenarios

A Scenario is a projected plan for determining the future Treatments required in your Network. You use Scenarios to show the effect of different parameters on the cost of Treatments. The parameters you use will depend on your Network and the accuracy and completeness of your data. The parameters you use will also depend on those defects which are of most concern to you.

Standard practice is to create a variety of Scenarios based on different parameters. You then compare them using the **Works Selection Navigator**.

You would do this until you had a programme of Works which matched your Network priorities and your budget.

User Modified Scenarios

Scenarios are unable to be edited. This is because changing a recommended Treatment may make other data in the Scenario inconsistent with the new Treatment.

So you copy Scenarios and edit the copy. These copies reside in the User Modified Scenarios panel of the **Works Selection Navigator**.

You may delete Scenarios you no longer require.

Script

The **RAMM Works Selection** process relies on a set of rules or logic to determine the need for Treatment. These rules or logic are contained in the standard **RAMM Works Selection** Script shipped with the software.

You can create your own Script but this would be unusual.

Reports

You use a number of predefined **RAMM Works Selection** reports to view and compare Scenarios.

Refine Scenarios

You can create and compare several Scenarios using your own sets of analysis Parameters such as intervention Criteria, Variables and Treatment Costs. When you have a Scenario which matches your Network Treatment requirements you prioritise Treatments and apply budget constraints to the Work Programme to split the Treatments over a number of years.

You can approve specific Treatments based on your own engineering knowledge. You can also do this for political and social reasons. These Treatments will then be honoured during any subsequent dTIMS export or Work Selection run and will not be overriden with another Treatment.

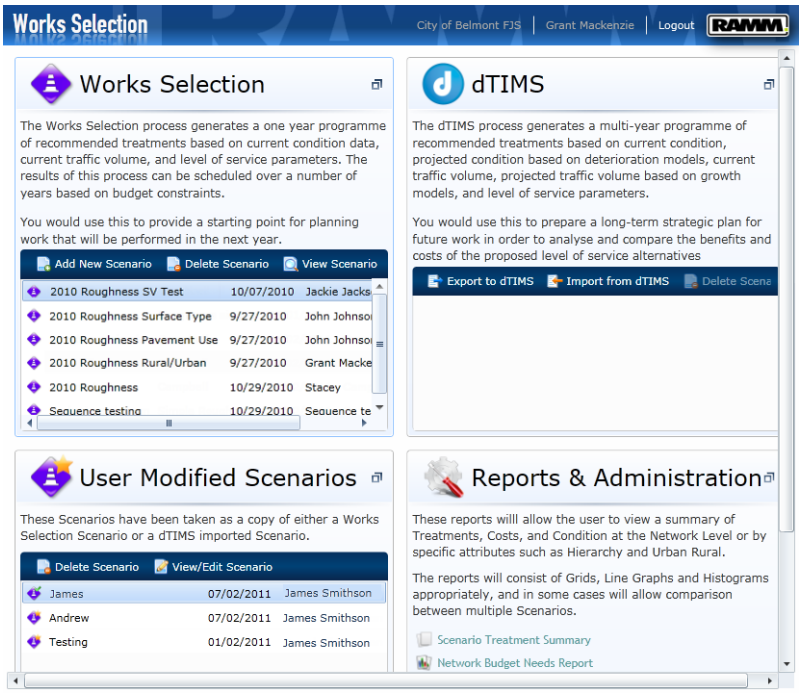
Works Selection Navigator

You use the **Works Selection Navigator** to manage this process from start to finish.

Works Selection Navigator

The **Works Selection Navigator** from **RAMM Manager** has four sections.

- **Works Selection**
  You configure and generate Works Selection Scenarios with recommended Treatments and their costs for one or more years.
- **dTIMS**
  You use dTIMS to generate a multi-year programme of works. You Export your data to dTIMS and Import the resulting dTIMS Scenario.
- **User Modified Scenarios**
  Scenarios cannot be edited. To vary a Scenario you duplicate the Scenario and edit the copy. These copies are listed in the User Modified Scenarios section.
- **Reports and Administration**
  You view, report and graph multi-Scenario reports. You also perform other administrative tasks.



CHAPTER 2

Use Works Selection

RAMM Works Selection produces a list of recommended Treatments for your Network for the next twelve months or more.

You create a Scenario to generate the programme of recommended Treatments. The recommendations are based on current Condition data, traffic volume and level of service parameters which you set.

The **RAMM Works Selection** process produces recommended Treatments and Treatment Costs for your Network. You check these out and decide whether to accept the recommendations or to run a different Scenario.

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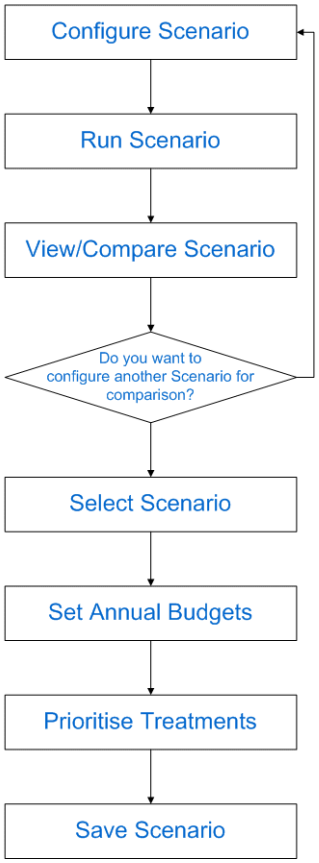
Works Selection Process

You use **RAMM Works Selection** to create a Programme of Works for your next twelve months. You follow the process outlined below.

Works Selection Scenario Process



Scenarios

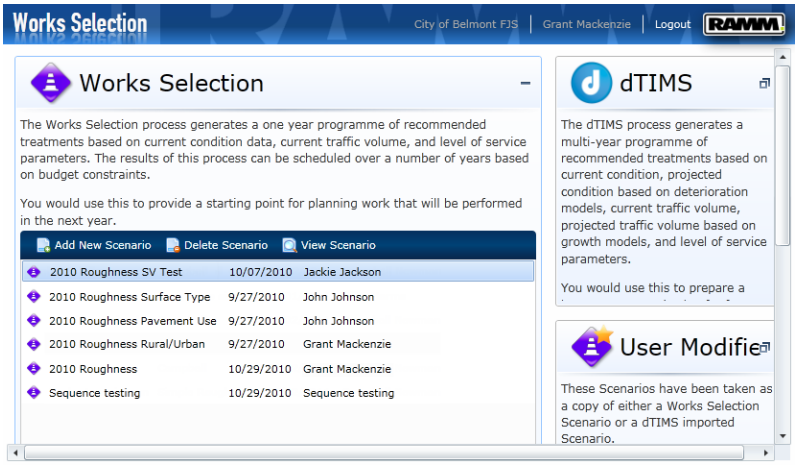
A Scenario is a projected plan for determining the future Treatments required in your Network. Scenarios include the potential cost of those Treatments. When using **RAMM Works Selection** to decide which works to schedule, you use Scenarios to show the effect of different parameters on the cost of Treatments. The parameters you use will depend on your Network and the accuracy and completeness of your data.

Works Selection Panel

When you open the **Works Selection Navigator** it defaults to the Works Selection panel. Any Scenarios you have created will be listed.

At this stage you have the option of adding a new Scenario, configuring an existing Scenario and running the new or recently configured Scenario.

You can delete those Scenarios you no longer require.



Scenarios are read-only. You cannot change them. Changing a recommended Treatment may make other data in the Scenario, such as projected Condition data, inconsistent with the new Treatment.

Scenario Configuration

When you configure a Scenario, the first action you take is to define the Scenario Details.

Name

You should give your Scenario a name which will be both meaningful and distinctive so that you and other **RAMM Works Selection** users can locate and recognise it easily if necessary.

Script

The Scenario Script is the code which includes the rules or logic which makes the Scenario work. Most users will use the default Works Selection Script. So that will be the only option at the Scenario Script drop-down list.

If you have defined your own Scenario Scripts, you can select one of them. The Script determines which Condition data triggers the generation of a recommended Treatment. See Scenario Script (on page 9).

Parameters

If there is a predefined set of parameters for the Scenario Script, you can select it at the Parameters drop-down list.

You can edit the parameters. You can also create your own predefined parameter sets. See Scenario Parameters (on page 10).

Attribute and Condition Details

If the Scenario Script has predefined sets of default values for Attributes and Conditions you can select these.

You can edit the defaults. You can also create your own predefined Attribute and Condition sets. See Parameter Sets (on page 12).

Filter

If you wish to restrict the running of the Scenario to a limited group of Roads you use the Filter. You can select a particular contiguous group of Roads or a set of Roads with particular characteristics. See Scenario Filter (on page 23).

Use Committed Works Programme

You probably have Treatments which you are going to carry out over the next twelve months for your own reasons. These could be for engineering, social or political imperatives.

If you wish these Treatments to be included in the Scenario when it is run you select the Use Committed Works Programme option. Treatments which are Planned, Committed or Funded will be included in the Scenario when it is run only if you have already set a User Defined Scenario as the Committed Programme.

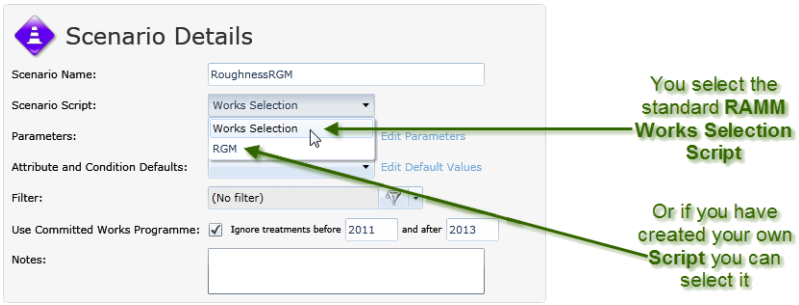
Notes

You and others in your organisation may create and try many different Scenarios. You should add a note explaining the salient features of the Scenario.

You should consider adding the Contact details of the person who knows most about the Scenario in case some one wants to run the Scenario at a later date and needs information about it.

Scenario Script

When you create a new Scenario you select the Script for the Scenario from the Scenario Script drop-down list.



The **RAMM Works Selection** Script creates proposed Treatments based on your Condition data and parameters which you have set.

It is possible to create your own Scripts to refine the rules or logic used to create proposed Treatments. It is envisaged that only users who are skilled in programming and have a complete grasp of **RAMM** Condition data will consider writing their own scripts.

Most users will find that the standard **RAMM Works Selection** Script exactly matches their needs.

Scenario Parameters

You run your Scenarios to generate proposed Programmes of Works for your Network. Your Network is unique. So your maintenance imperatives are probably unique to your Network. You will want to configure Scenarios to run so that the recommended Treatments best match your own Network maintenance priorities.

You use parameters to configure your Scenarios to best match your Network maintenance requirements.

You configure the parameters to:

- ignore dubious Condition data
- set variations in the threshold values at which Treatment recommendations are triggered
- better reflect your actual cost expectations for Resurface, Rehabilitation and Reconstruction.

Options

You use Options to prevent the rules or logic of the Script being applied to Treatments on the basis of Condition data which you believe to be unreliable. See Select Options Criteria (on page 13).

Variables

You use Variables to set different values from the standard Criteria values at which recommended Treatments are triggered by the Scenario Script. For instance, you might decide that a greater Roughness value is acceptable on Rural Roads than for high volume Urban Roads before remedial Treatment is required. See Apply Variable Settings (on page 17).

Treatment Costs

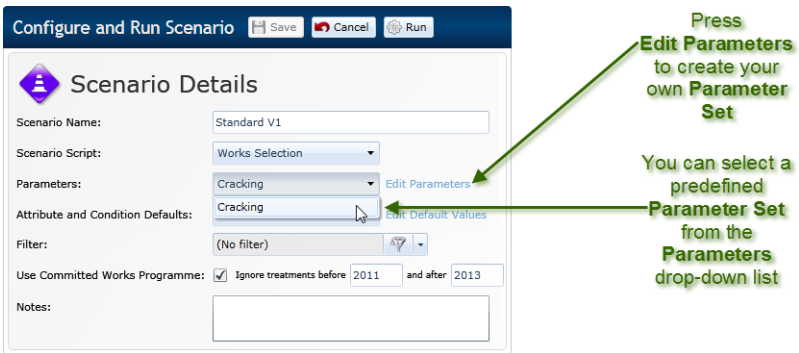
You define the costs of Resurface, Rehabilitation and Reconstruction for different sets of circumstances. You do this to reflect the normal variation in maintenance costs that occurs between, for instance Rural and Urban Roads. See Scenario Treatment Costs (on page 19).

Select or Edit Parameters

When you create a new Scenario you use an existing Parameter Set for the Scenario or create a new set.

If you have predefined sets of parameters, these will be available from the Parameters drop-down list.

If you have not created your own Parameter Sets or those you have created are not suited to the purpose for which you are running the Scenario, you define your own Parameter Set.



You press Edit Parameters to open the **Parameter Sets** page.

Parameter Sets

When you are creating a new Parameter Set, the existing ones you have created are listed on the **Parameter Sets** page. If you have used more than one Script, your Parameter Sets will be grouped by Script.

Copy and Compare

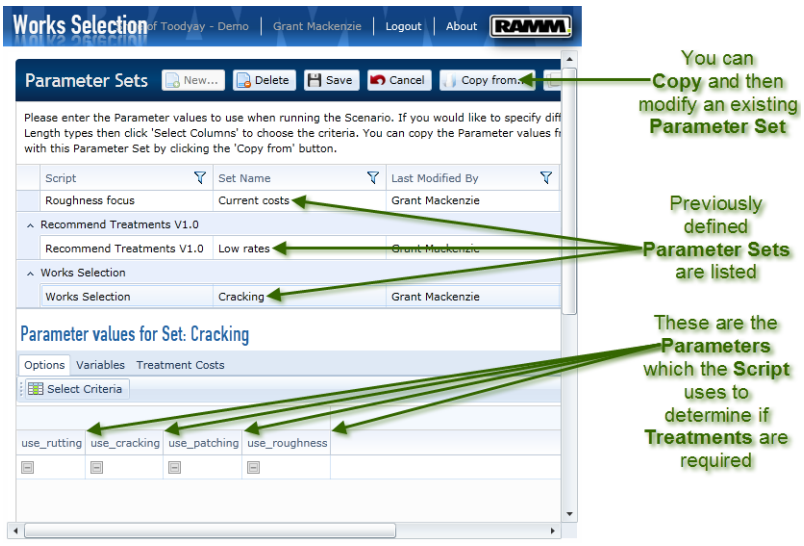
When you are creating a Parameter Set you can copy an existing one and use this for the basis for your new set. This can save you time.

Another advantage could be that you can compare the resulting Scenarios when you are fine tuning your proposed Works Programme.

Parameter Values for the Set

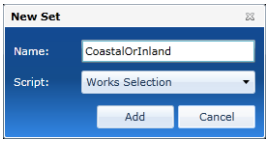
Below is a version of what you will see when you first press Edit Parameters on the **Configure and Run Scenario** page.

The Use Rutting, Use Cracking, Use Patching and Use Roughness values are used by the Script to determine whether or not a Treatment will be recommended for a Treatment Length.



Add New Set

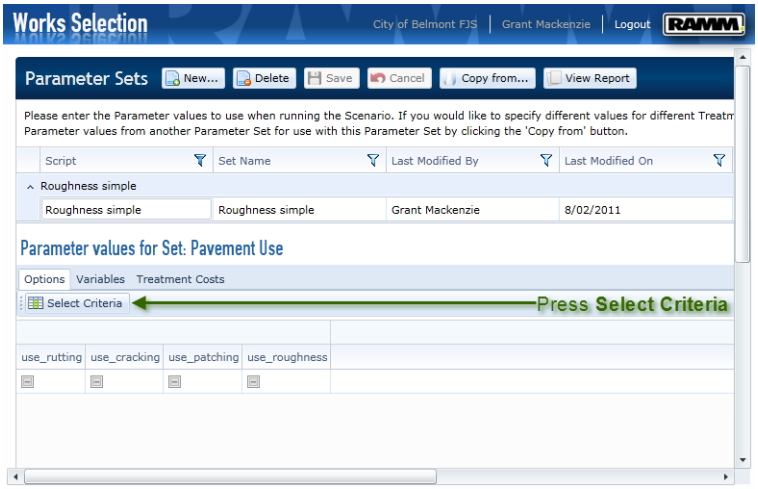
You add a new Parameter Set by pressing New... to open the **New Set** dialog. You name the set, select the Script to use and press Add. You then set the parameters.



Select Options Criteria

The first parameters you define are the Scenario Options. Scenario Options are simple Boolean (Yes and No) values which determine whether or not the rules or logic of the Script are applied to Treatments Lengths. You must select Yes or No (ie select or clear the options). You would Select No to prevent the Script recommending Treatments on the basis of Condition data which you believe to be unreliable. When you select Yes you have the option to press Select Criteria to further vary the parameters which will be applied.

You do this at the Parameter values for Set panel. You press Select Criteria at the Options tab to open the **Select Criteria Columns** dialog.



Setting Scenario Options does not limit the running of the Scenario to a defined group of Treatment Lengths.

The Scenario Script is still run against all Treatment Lengths. The Script rules and logic are applied only to Treatment Lengths which match the Options you have defined.

You limit the running of a Scenario to a subset of Treatment Lengths by defining a Filter. The Scenario will be run against only those Treatment Lengths which are included in the Filter set.

Select Options Columns

Scenario Options are simple Boolean (Yes and No) values which determine whether or not the rules or logic of the Script are applied to Treatments Lengths. You must select Yes or No (ie select or clear the options). You would Select No to prevent the Script recommending Treatments on the basis of Condition data which you believe to be unreliable. When you select Yes you have the option to press Select Criteria to further vary the parameters which will be applied.

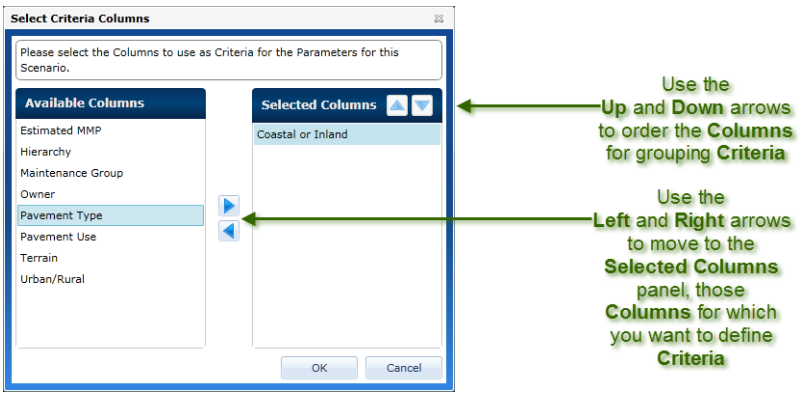
You press Select Criteria at the Options tab to open the **Select Criteria Columns** dialog where you select the database columns whose values you want to exclude from the Treatment recommendation process. See Select Criteria Columns (on page 21).

Select Columns

You select the columns which you want to use as Criteria. You then press Move Right and Move Left to shift the columns back and forth until the columns you require are in the Selected Columns list. See Select Criteria Columns (on page 21).

Group Data

If you select more than one column you can use Move Up and Move Down to order their grouping hierarchy display at the Options tab on the **Scenario Parameters** panel. See Group Criteria Columns (on page 22).



Apply Option Settings

Some of your Condition data may be sub optimal. If so, you will want the Script to ignore this data when recommending Treatments.

You set parameter Options to achieve this. You can use a predefined set to achieve this or you can define your own. To define your own you press Select Criteria at the Options tab to open the **Select Criteria Columns** dialog where you select the database columns whose values you want to exclude from the Treatment recommendation process. See Select Criteria Columns (on page 21).

When you have selected the columns for the Options at the **Select Criteria Columns** dialog, you then decide which combinations of values will be used in determining the Scenario and which will not.

Select or Clear Options

You clear the check boxes for those criteria combinations you wish the Script to ignore. You select the check boxes for those criteria combinations you wish the Script to use.

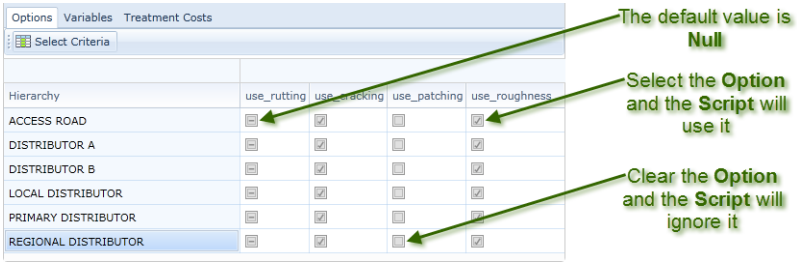
Option Values

When you determine whether an Option will be used or ignored by the Scenario Script, there are three settings. These are displayed in the graphic below.

The default setting is Null. As this is the equivalent of a False setting, the Script will ignore the Option.

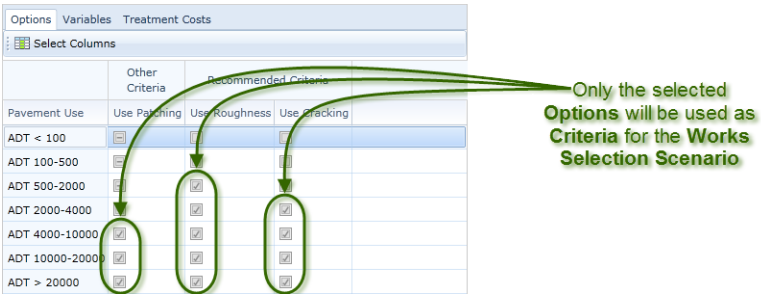
If you clear the Option this is a False setting. So the Script will ignore the Option.

If you select the Option this is a True setting. So the Script will use the Option.



Option Example

Once you have applied your settings you will most likely have a more complex version of the example below.



What the above example means is that when the Scenario is generated, it will use as Criteria for recommending Treatments for:

- Patching only Treatment Lengths with ADT 4,000 and over
- Roughness only Treatment Lengths with ADT 500 and over
- Cracking only Treatment Lengths with ADT 2,000 and over.

So the combinations which have not been selected will not be considered when determining if Treatments will be recommended for Treatment Lengths.

Boolean Options

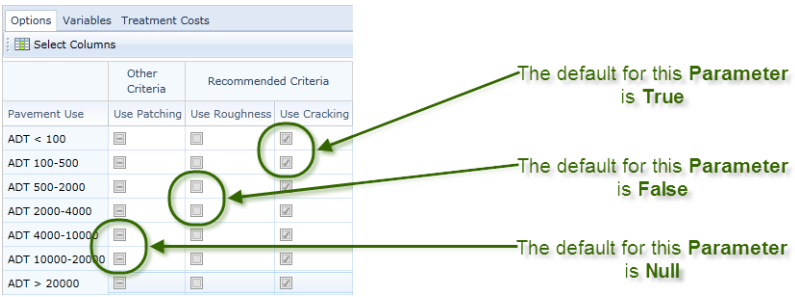
When you are selecting Options to configure the Scenario, you are determining whether or not a particular parameter will be used. You do this by selecting or clearing its check box.

The option of selecting or clearing a check box is a Boolean option.

True, False or Null

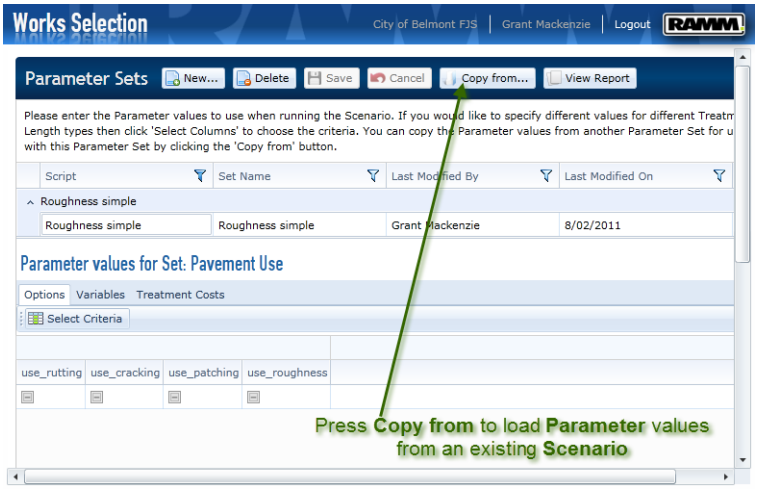
There are three values which the check boxes can have being True, False and Null.

- True, or selected, means that the parameter will be used.
- False, or cleared, means that the parameter will not be used.
- Null means that there is no change to the default setting for the parameter.



Load Values from an Existing Scenario

When you are adding a new Scenario, you can load the parameter values from an existing Scenario. You do this by pressing Copy from.



You might do this so that you can try variations on an existing Scenario or perhaps to save time in creating a new Scenario.

The **Choose Parameter Header** dialog opens. You click on the Scenario whose parameters you want to load. The dialog closes and the parameter values default. You then edit these values.

Apply Variable Settings

Once you have set your Scenario Options you define your Scenario Variables. You use Variables to set different values from the standard Criteria values at which recommended Treatments are triggered by the Scenario Script. For instance, you might decide that a greater Roughness value is acceptable on Rural Roads than for high volume Urban Roads before remedial Treatment is required.

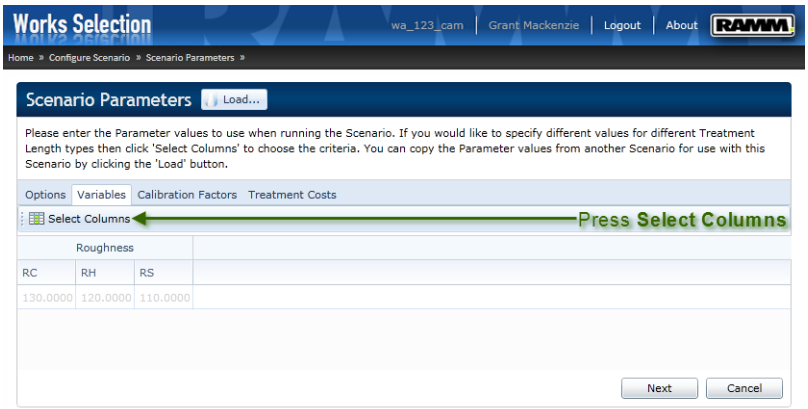
You do this at the Variables tab on the **Scenario Parameters** panel.

Variable Condition Criteria

You can see, below, a version of what you will see when you first open the Variables tab on the **Scenario Parameters** panel. This is a simplified example.

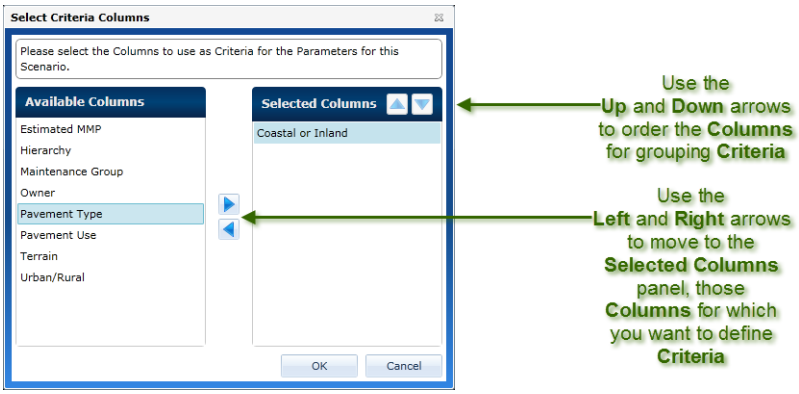
Initially only the standard values will display as below. The values you see will be the ones which were defined in the Scenario Script. In the example below the standard Roughness values have been set. They determine at which levels of Roughness a Treatment Length will require Reconstruction (RC), Rehabilitation (RH) and Resurfacing (RS).

The Variables you define will set different Roughness values at which at which Treatment Length will require Reconstruction (RC), Rehabilitation (RH) and Resurfacing (RS). You define the values for Condition Criteria you select.



Select Columns

You select the database columns, for which you want to define Variable Criteria, by pressing Select Columns to open the **Select Criteria Columns** dialog.



In the Available Columns list, you select the columns for which you want to define Criteria. You then use the arrows to shift the columns into the Selected Columns list. See Select Criteria Columns (on page 21).

If you select more than one column you can use the Up and Down arrows to order their display at the Variables tab on the **Scenario Parameters** panel. See Group Criteria Columns (on page 22).

In the example above Coastal or Inland has been selected. This will give you the option of defining values different from the standard Roughness values which the Scenario Script would use to determine whether or not to recommend remedial Treatment for a Treatment Length with an Inland or Coastal characteristic.

Variable Example

When you have selected the columns for which you want to set Variable values, you will initially see the default values as below.

You define Variable values to be applied when the Works Selection Scenario is run.

Once you have defined your Variable values you will most likely have a more complex version of the example below. What the example beneath means is that when the Scenario is generated, it will use higher Roughness values for selecting works on Rural Roads than on Urban Roads.

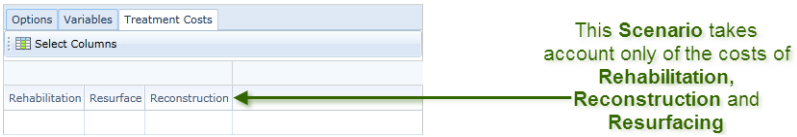
Scenario Treatment Costs

You define the costs of Resurface, Rehabilitation and Reconstruction for different sets of circumstances. You do this to reflect the normal variation in maintenance costs that occurs between, for instance Rural and Urban Roads.

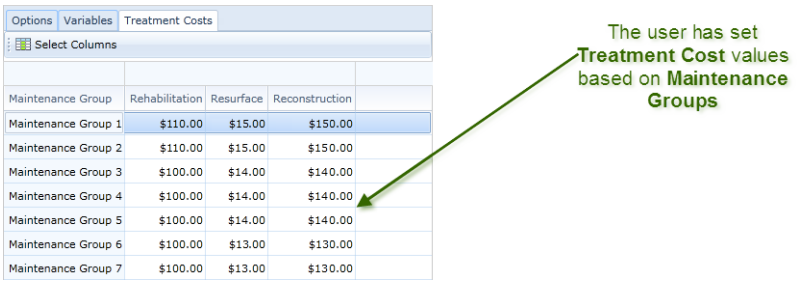
The Varying Cost of Treatment

You work to a Road maintenance budget. Your maintenance costs may vary depending on a variety of Criteria. If your costs vary you will want to specify the actual costs of Treatments in your Network so that any Scenario of proposed Treatments you generate is as realistic as possible. You do this at the Treatment Costs tab.

In the example below, the Scenario Script uses the costs of Rehabilitation, Reconstruction and Resurfacing in its calculations.

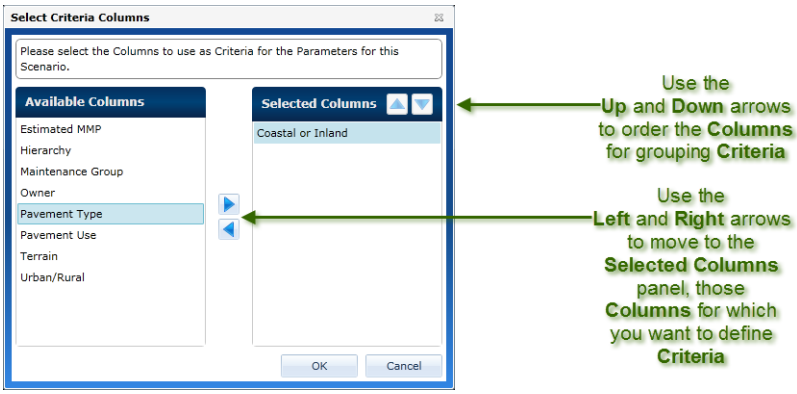


The costs of Treatment may vary dependent on Treatment Length Criteria. If so, you define the Treatment Costs variations for the different Treatment Length Criteria. In the example below the user has defined varying cost of Treatment dependent on the Maintenance Groups value of the Treatment Length.



Select Columns

You select the database columns, for which you want to define Treatment Cost variations, by pressing Select Columns to open the **Select Criteria Columns** dialog.



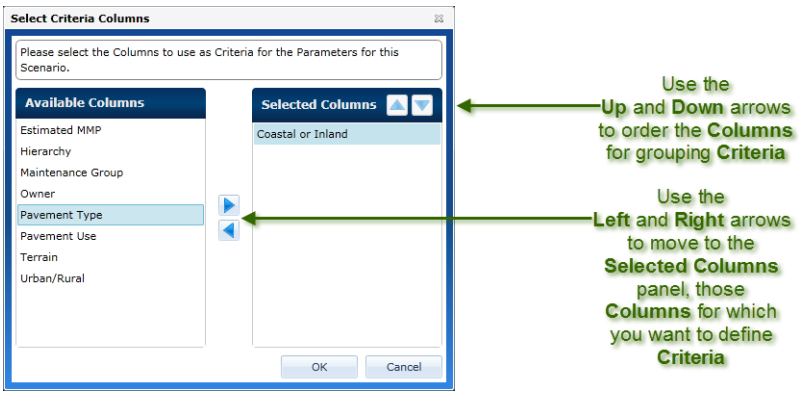
In the Available Columns list, you select the columns for which you want to define Treatment Costs variations. You then use the arrows to shift the columns into the Selected Columns list. See Select Criteria Columns (on page 21).

If you select more than one column you can use the Up and Down arrows to order their display at the Treatment Costs tab on the **Scenario Parameters** panel. See Group Criteria Columns (on page 22).

In the example above Coastal or Inland has been selected. This will give you the option of defining values different from the standard Treatment Costs values which the Scenario Script would use to determine the cost of remedial Treatment for a Treatment Length with an Inland or Coastal characteristic.

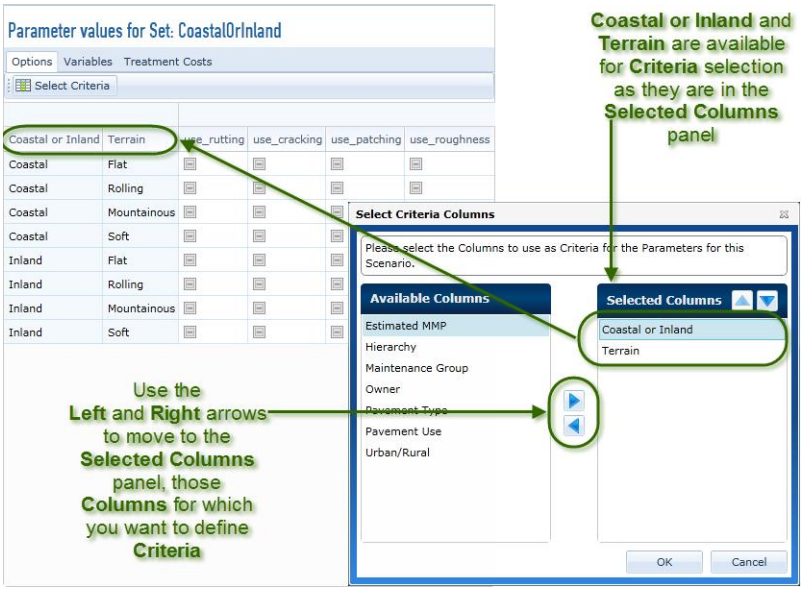
Select Criteria Columns

You select at the **Select Criteria Columns** dialog, the columns for the Criteria you define. You open this dialog by pressing Select Criteria at the Parameter values for Set panel.



The Available Columns list contains the database columns which are available for you to define the Criteria for your Scenario. You select the columns which you want to use as Criteria. You then press Move Right and Move Left to shift the columns back and forth until the columns you require are in the Selected Columns list.

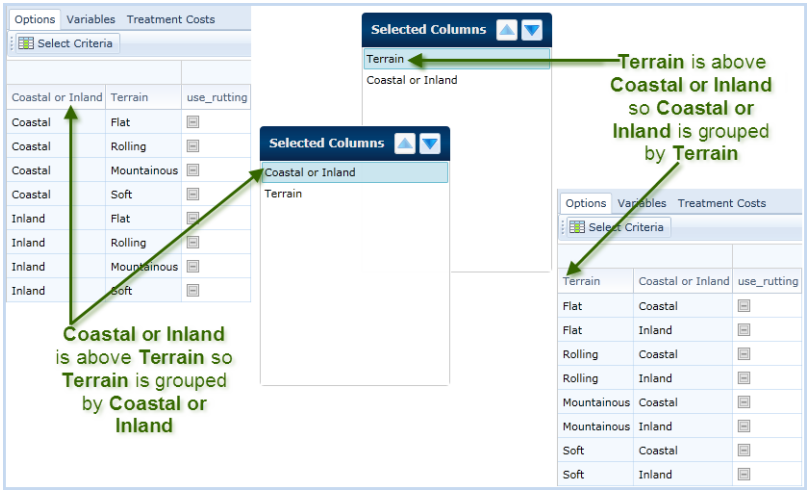
In the example above Pavement Type has been selected. Until it has been moved over to the Selected Columns panel, its values will not be an option for combining with Use Rutting, Use Cracking, Use Patching and Use Roughness values as Criteria when recommending Treatments.



Group Criteria Columns

If you have more than one column for your Criteria, viewing all the options can become quite complex. So it may be convenient to group the Criteria. You group Criteria by arranging the column names in descending grouping order at the Selected Columns panel list. The grouping hierarchy is from the top of the list to the bottom.

If you select more than one column you can use Move Up and Move Down to order their grouping hierarchy display at the Options tab on the **Scenario Parameters** panel.



Scenario Filter

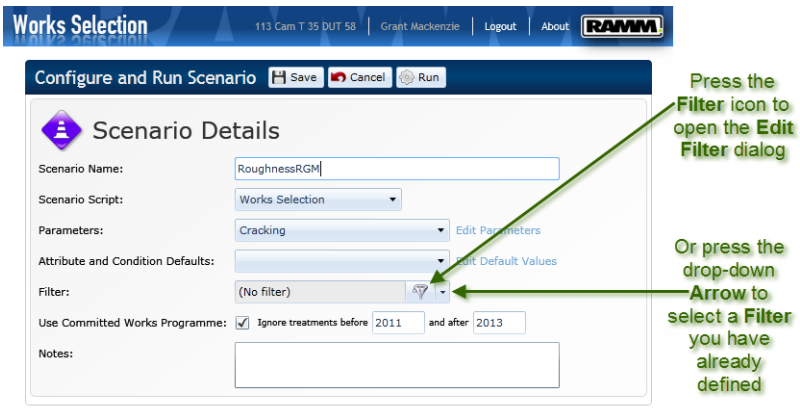
You may want to run your Scenario on a defined set of Treatment Lengths.

Why Use a Filter?

This could be to run the process more quickly. It may be that you have a specific set of Roads which you know well and you want to use only that subset of your Network for comparison purposes. You might want to run the Scenario over only Treatment Lengths with defined characteristics.

If so you use the **Scenario Filter** to include or exclude the Treatment Lengths you choose.

You would most likely use the Filter to restrict the Scenario to run for a defined set of Roads or Treatment Lengths so that you can quickly compare the results of different Scenario Criteria.



Setting Scenario Options does not limit the running of the Scenario to a defined group of Treatment Lengths.

The Scenario Script is still run against all Treatment Lengths. The Script rules and logic are applied only to Treatment Lengths which match the Options you have defined.

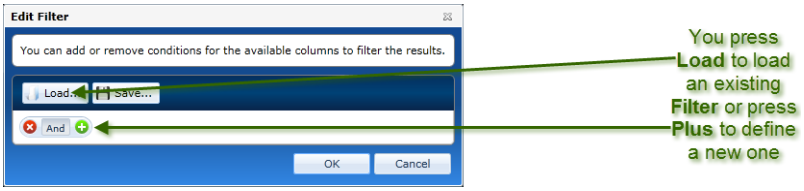
You limit the running of a Scenario to a subset of Treatment Lengths by defining a Filter. The Scenario will be run against only those Treatment Lengths which are included in the Filter set.

Edit Filter

If you want to run a Scenario over a defined set of Roads you define the Road set using a Filter.

Edit Filter Dialog

You define Filters at the **Edit Filter** dialog. You access the **Edit Filter** dialog by pressing Edit at the Scenario Details panel of the **Configure and Run Scenario** page.

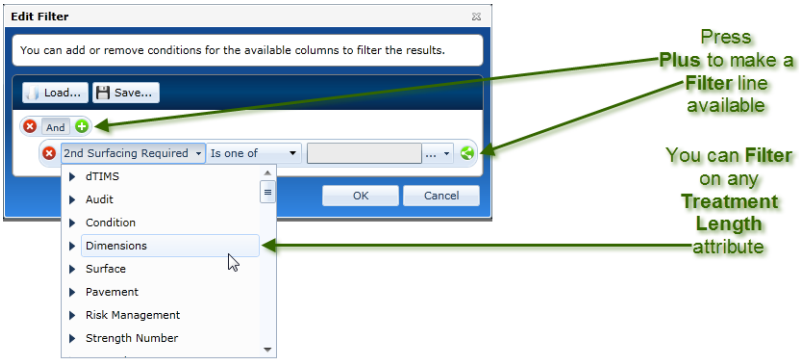


Load Filter

If you have created and saved your own Filters they become available by pressing Load. See Save a Filter (on page 26).

Define Filter

Scenarios run against Treatment Lengths. So the options available when you press And are all the attributes of a Treatment Length.

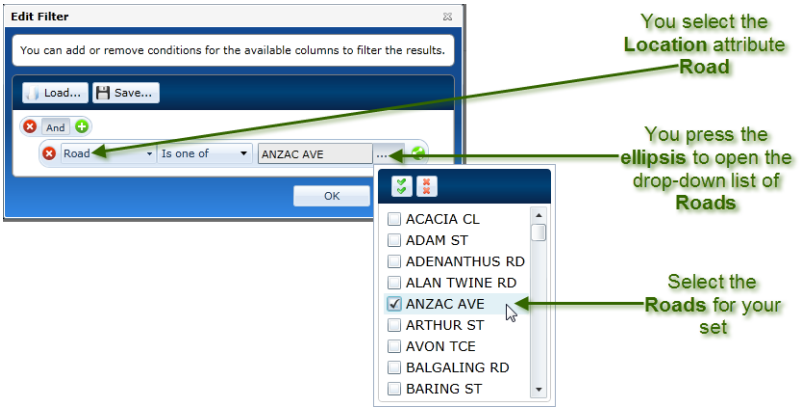


Select a Set of Roads

The most likely Filter you will create is a defined set of Roads in your Network.

The Road ID and Road Name are attributes of Treatment Lengths. They are in the Location attribute grouping.

You select Road under the Location group. You then press the ellipsis to reveal the Road List. You select the Roads for your set.



Save a Filter

You save Filters you want to use again. For instance, you might want to run a Scenario several times, changing the parameters each time for the purposes of comparison. In this case, you would create and save a Filter to apply to your Roads to save time and so that the comparisons would be meaningful.

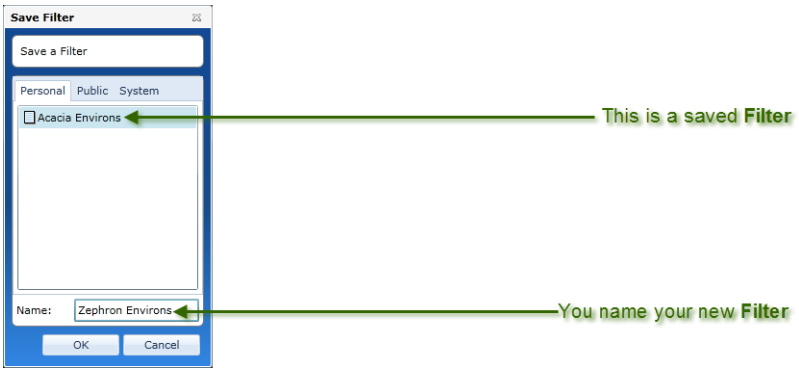
You do this at the **Save Filter** dialog. You press Save on the **Edit Filter** dialog to open the **Save Filter** dialog.

Saved Filters List

When you open the **Save Filter** dialog, the Filters you have already created will be listed.

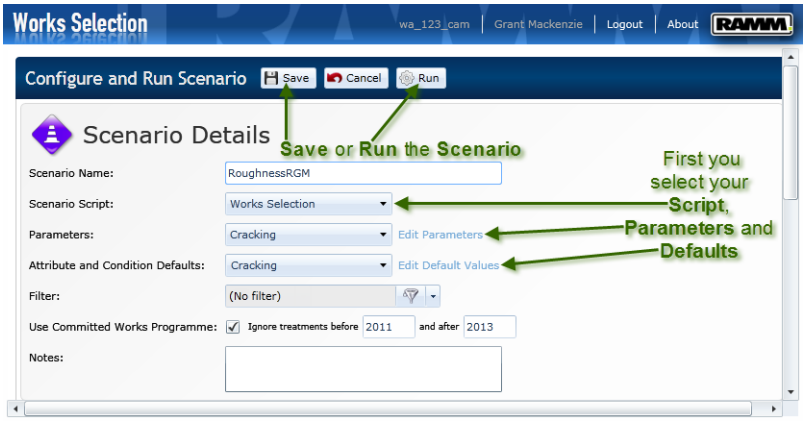
Name Filter

You give the Filter a distinctive and meaningful name and then press OK to save it.

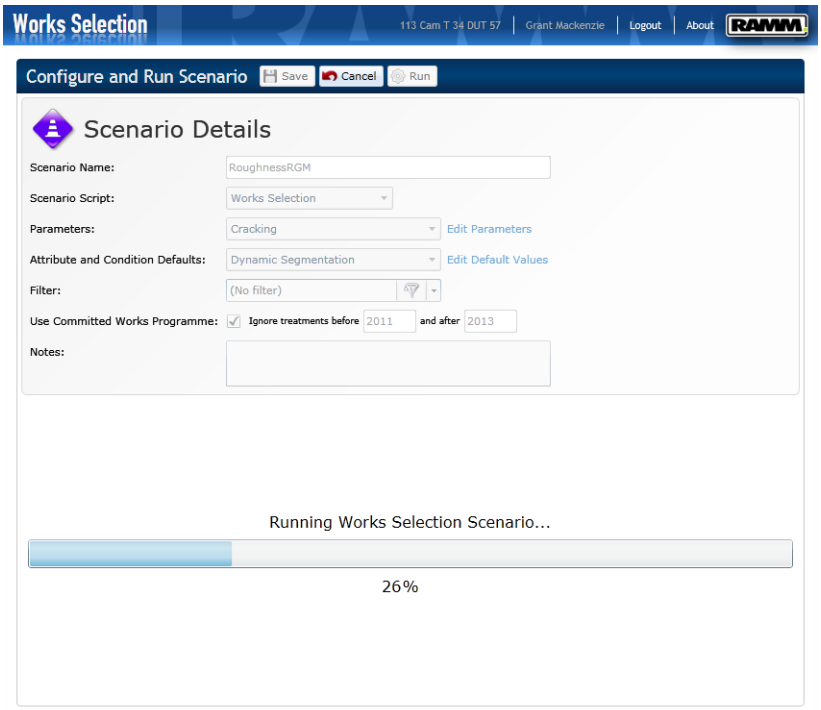


Run Scenario

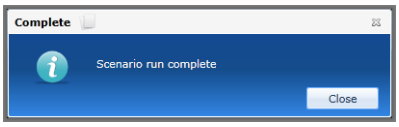
When you have defined the Parameters for the Scenario you save it. You can run the Scenario when you have saved it. Alternatively you can just save the Scenario and run it later.



After you have pressed Save and Run Scenario, a Progress Bar appears to display how far through the process you are.



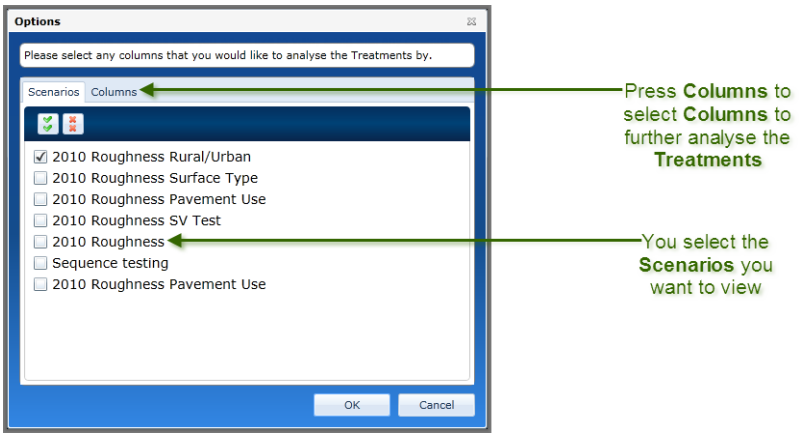
When the process has completed a dialog opens to advise that the Scenario run is complete. You press Close to be returned to the **View Scenario** page where you have a number of options.



Select a Scenario to View

When you have added and run your Scenarios, you have the opportunity to view them one at a time or to compare them. You also have the opportunity to analyse the Treatments by columns. You must select at least one column by which to view the Treatments.

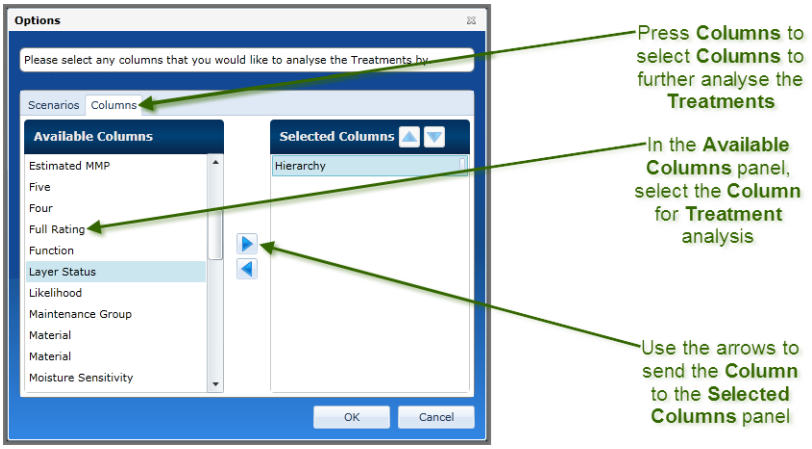
The default column by which to analyse the Treatments is Hierarchy.



Select Columns for Analysis

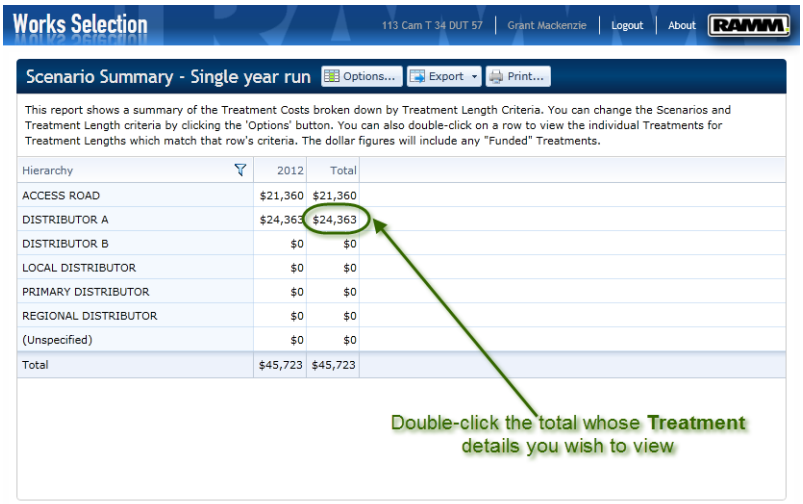
When you have added and run your Scenarios, you have the opportunity to analyse the Treatments by columns when you are viewing one or more Scenarios. You must select at least one column for analysis.

The default column is Hierarchy.

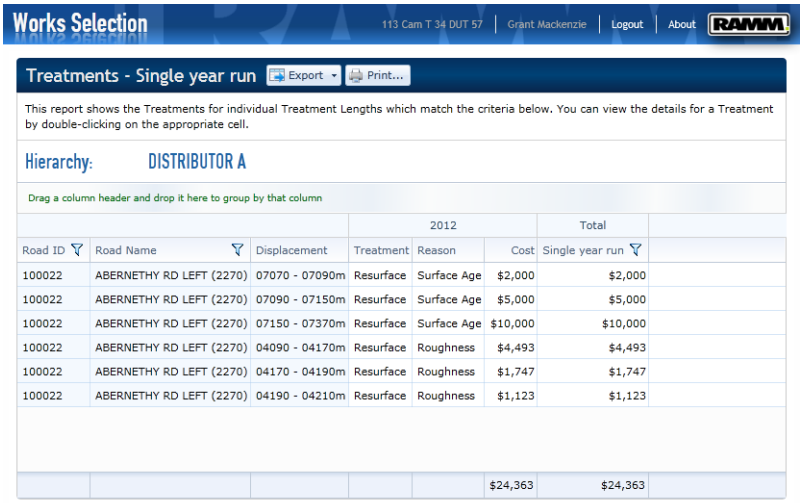


View Treatments

The Scenario will display as below. The Treatments will be summed by the analysis Column values.



To view the Treatment values you double-click the total whose details you want to view. The Treatments for individual Treatment Lengths which match the Criteria are then listed

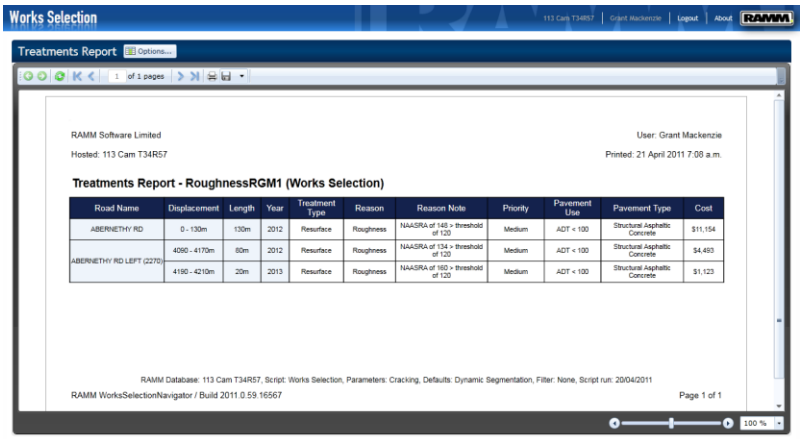


			2012			Total
Road ID	Road Name	Displacement	Treatment	Reason	Cost	Single year run
100022	ABERNETHY RD LEFT (2270)	07070 - 07090m	Resurface	Surface Age	$2,000	$2,000
100022	ABERNETHY RD LEFT (2270)	07090 - 07150m	Resurface	Surface Age	$5,000	$5,000
100022	ABERNETHY RD LEFT (2270)	07150 - 07370m	Resurface	Surface Age	$10,000	$10,000
100022	ABERNETHY RD LEFT (2270)	04090 - 04170m	Resurface	Roughness	$4,493	$4,493
100022	ABERNETHY RD LEFT (2270)	04170 - 04190m	Resurface	Roughness	$1,747	$1,747
100022	ABERNETHY RD LEFT (2270)	04190 - 04210m	Resurface	Roughness	$1,123	$1,123
					$24,363	$24,363

CHAPTER 3

Reports

Works Selection reports are used to view summaries of recommended Treatments, compare Scenarios year by year, to export useful data and more.



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Treatment Distribution Report 37

Cumulative Costs Report 39

Projected Network Data Report 40

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Works Selection Reports

There are a number of Works Selection reports. They include:

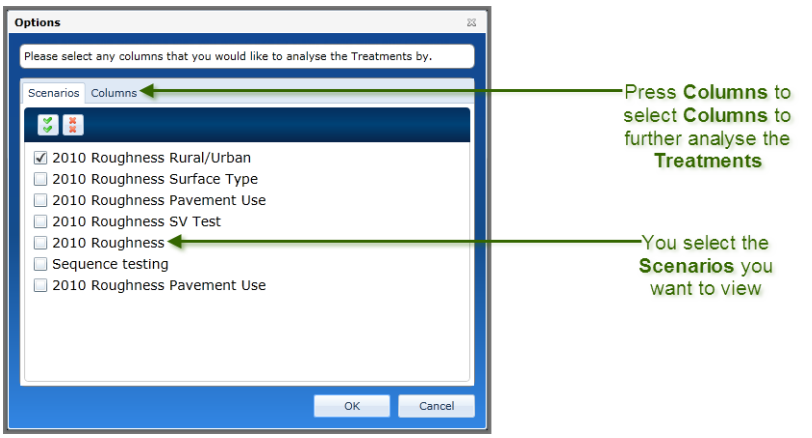
- Scenario Treatment Summary Report (on page 33)
  You use the Scenario Treatment Summary report when you want to compare summaries of Treatment Costs broken down by Treatment Length Criteria. You can also double-click on a summary total to view its constituent Treatments.
- Network Budget Needs Report (on page 35)
  You use the Network Budget Needs report to compare Scenarios by year. You can generate the graph to compare Treatment Lengths or Treatment Costs. You can generate the comparisons as line, bar or stack graphs. You also select a date range for the comparison.
- Treatment Distribution Report (on page 37)
  You use the Treatment Distribution report to view a stack chart representation of the cost of Treatment Costs or Treatment Lengths by one Category such as Funding Group, Treatment Type or other. You do this for one Scenario at a time.
- Cumulative Costs Report (on page 39)
  You use the Cumulative Costs report to view a comparison of the overall Treatment Costs for different Scenarios over time. You view a comparison of the cumulative totals rather than a year by year comparison of the costs.
- Projected Network Data Report (on page 40)
  You use the Projected Network Data report to view the projected Condition of an aspect of your Network for a particular year, or years, under a particular Scenario.
- Print Treatments Report (on page 42)
  You use the Treatments report to generate a printable list of the recommended Treatments for a Scenario. You can limit the list by Treatment Type, Year and Roads. You can also choose not to display the Treatment Costs or the Scenario Settings if it is not appropriate to reveal these to the report's readers.
- Print Options Report (on page 44)
  You use the Print Treatments report to generate a printable list of the Parameters, Defaults and Filters you have used to generate the recommended Treatments for a Scenario.

Scenario Treatment Summary Report

You use the Scenario Treatment Summary report when you want to compare summaries of Treatment Costs broken down by Treatment Length Criteria. You can also double-click on a summary total to view its constituent Treatments.

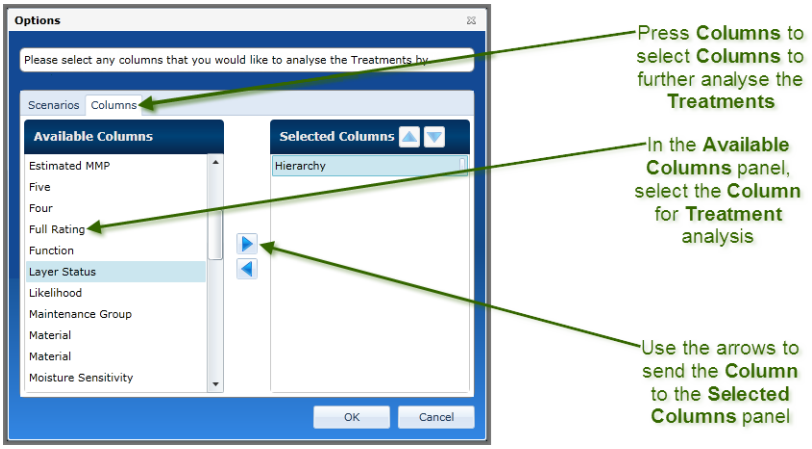
Select Scenarios

Before you open the report you select one or more Scenarios to view or compare.



Select Columns

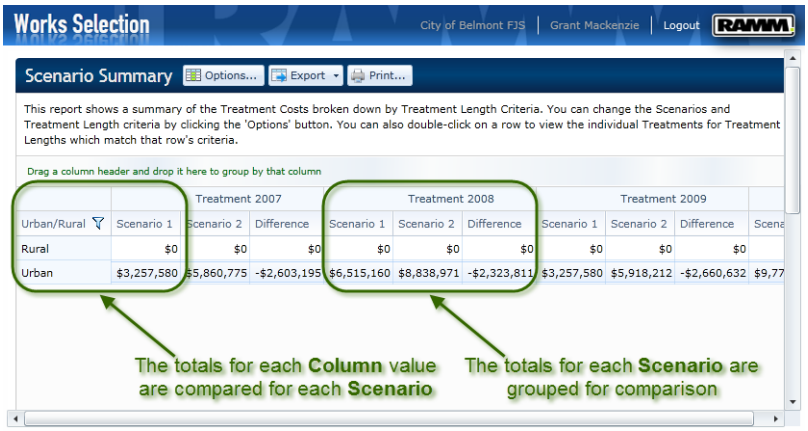
You select one or more Columns by which to analyse the Scenarios.



View Scenario Treatment Summary Report

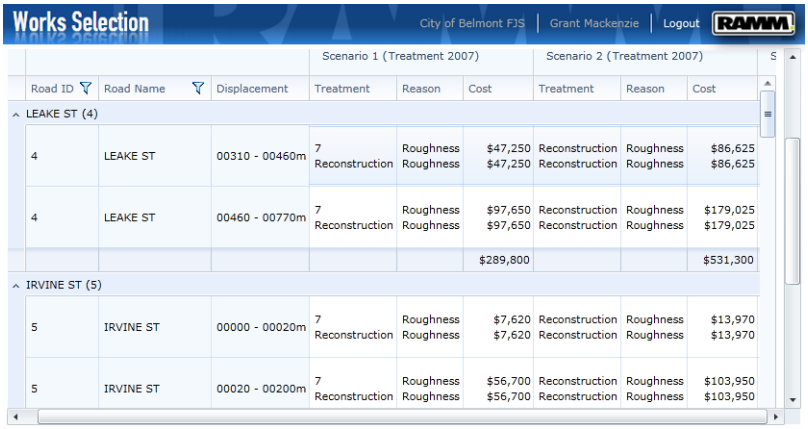
When you have selected one or more Scenarios to view and compare and one or more Columns for analysis, you view the report. You will see a summary of Treatment Costs separated into column values.

If you wish to make a different comparison you press Options and make alternate selections.



View Treatment Details

You double-click on a Scenario Summary report total to open a page with the details of the Treatments which comprise the total. You can view the details but not edit them.



Network Budget Needs Report

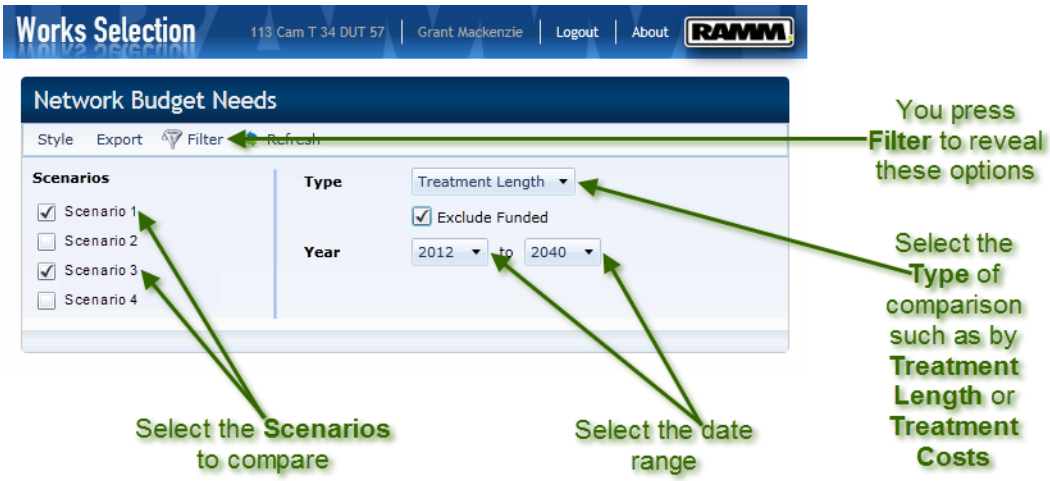
You use the Network Budget Needs report to compare Scenarios by year. You can generate the graph to compare Treatment Lengths or Treatment Costs. You can generate the comparisons as line, bar or stack graphs. You also select a date range for the comparison.

Report Parameters

You select the report parameters at the (unnamed) Filter panel. This becomes available when you press Filter.

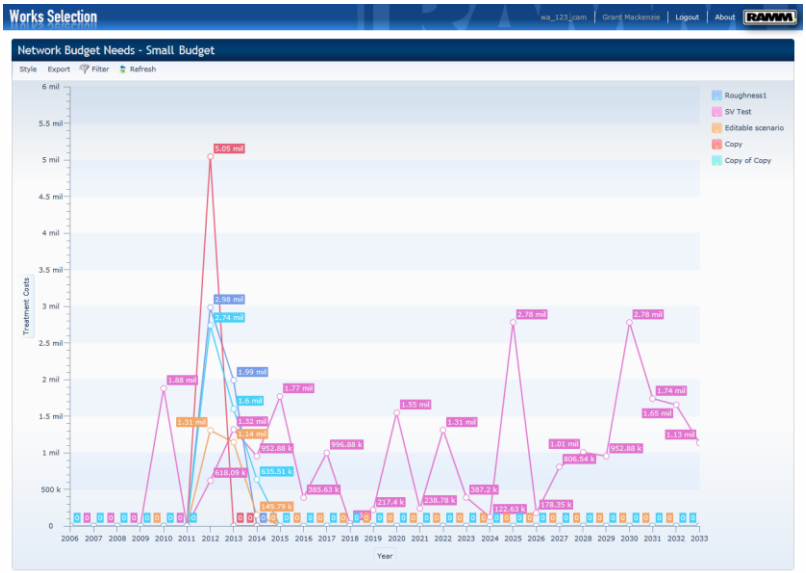
You select the parameters for the report such as the:

- Scenarios you want to compare
- range of years you want to view
- Type of display such as Treatment Costs or Treatment Lengths
- Funded Treatments will be excluded from the display.



Refresh the Report

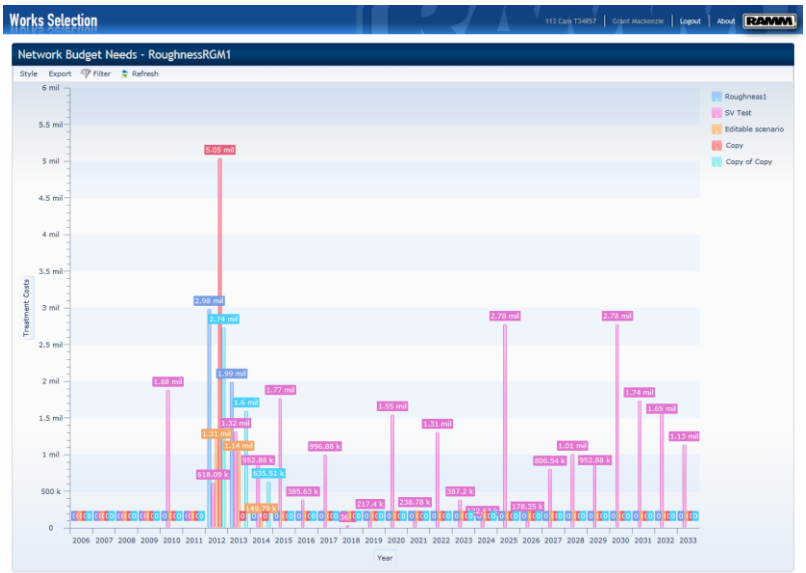
If you use the Filter to select different display options, the changes will not be revealed until you have pressed Refresh.



Line, Bar or Stack Graph

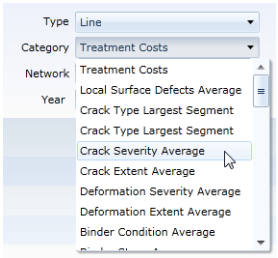
You select Line, Bar or Stack from the Style drop-down list to determine whether you will generate a line graph, a bar graph or a stack graph.

Below is the bar graph generated using the same parameters as the above line graph.



Categories

There are a large number of comparisons you can make depending on the Category you select at the Category drop-down list. You can see a few of the options in the graphic below.



Treatment Distribution Report

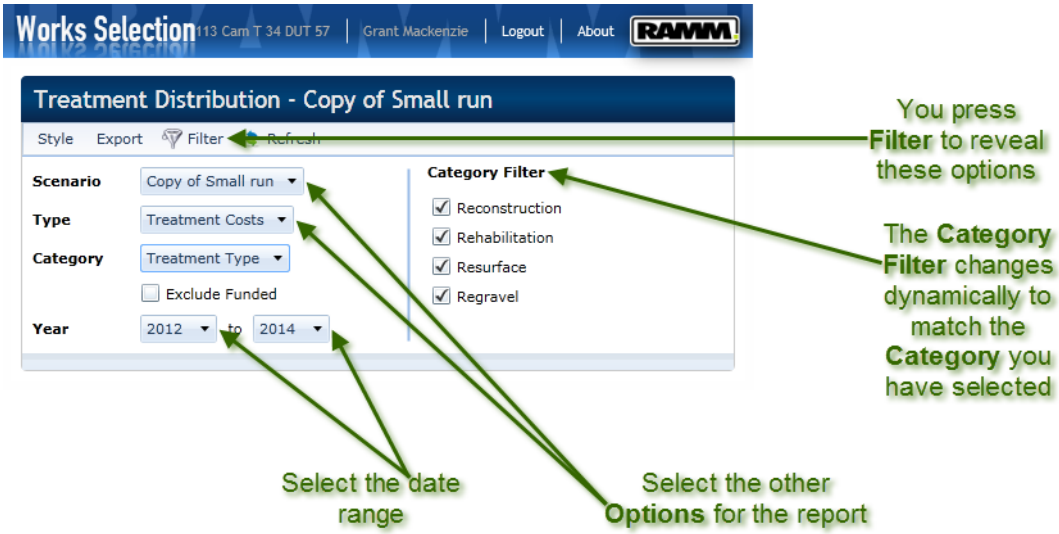
You use the Treatment Distribution report to view a stack chart representation of the cost of Treatment Costs or Treatment Lengths by one Category such as Funding Group, Treatment Type or other. You do this for one Scenario at a time.

Report Parameters

You select the report parameters at the (unnamed) Filter panel. This becomes available when you press Filter.

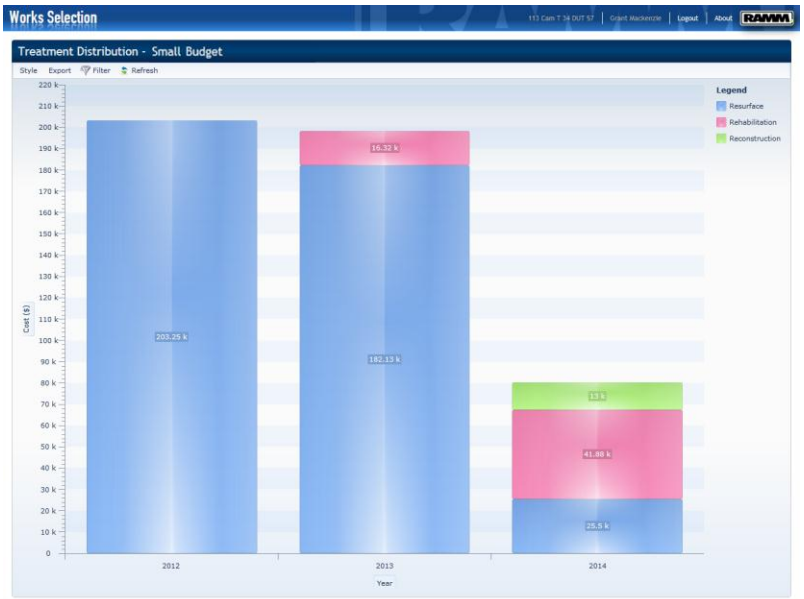
You select the parameters for the report such as the:

- Scenario whose cost you wish to view
- range of years for which you want to view data
- Type of display such as Treatment Costs or Treatment Lengths
- Funded Treatments will be excluded from the display
- Category such as Treatment Type, Pavement Group and Urban or Rural.



Refresh the Report

If you use the Filter to select different display options, the changes will not be revealed until you have pressed Refresh.



Cumulative Costs Report

You use the Cumulative Costs report to view a comparison of the overall Treatment Costs for different Scenarios over time. You view a comparison of the cumulative totals rather than a year by year comparison of the costs.

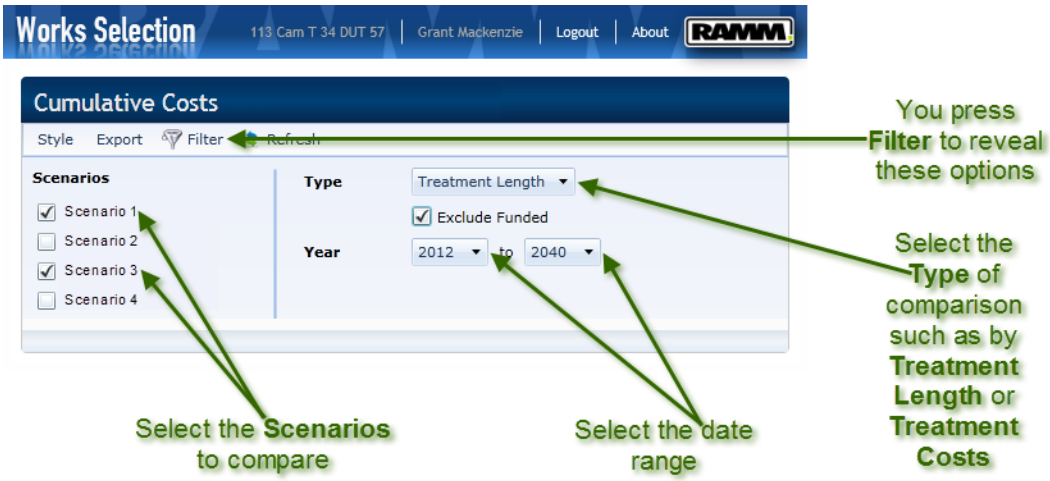
If you want to compare the costs year by year you use the Network Budget Needs report and select the Category of Treatment Costs. See Network Budget Needs Report (on page 35).

Report Parameters

You select the report parameters at the (unnamed) Filter panel. This becomes available when you press Filter.

You select the parameters for the report such as the:

- Scenarios you want to compare
- range of years you want to view
- Type of display such as Treatment Costs or Treatment Lengths
- Funded Treatments will be excluded from the display.

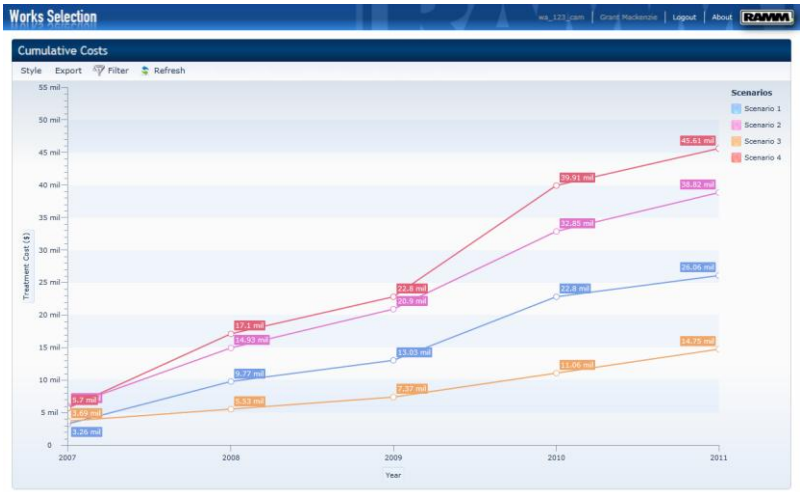


Refresh the Report

If you use the Filter to select different display options, the changes will not be revealed until you have pressed Refresh.

Line, Bar or Stack Graph

You select Line, Bar or Stack from the Style drop-down list to determine whether you will generate a line graph, a bar graph or a stack graph.



Projected Network Data Report

You use the Projected Network Data report to view the projected Condition of an aspect of your Network for a particular year, or years, under a particular Scenario.

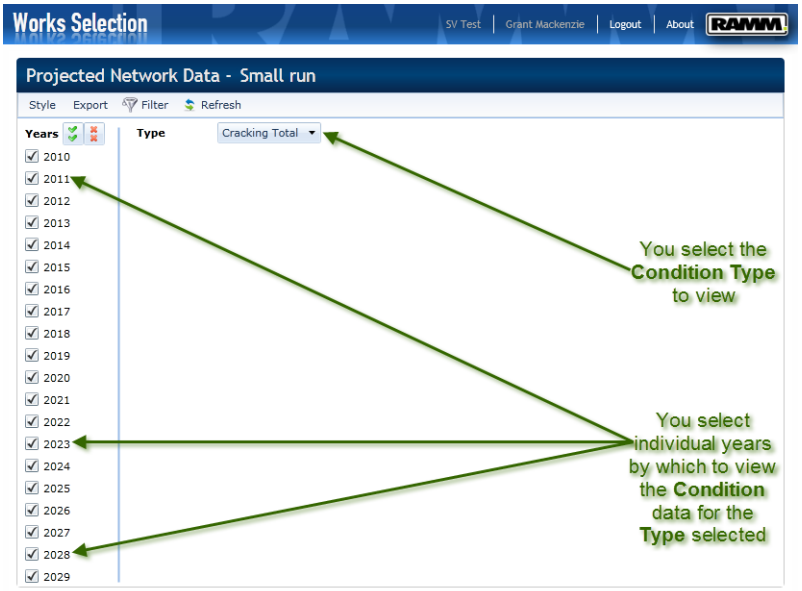
The data is displayed by year. So you might expect to see the Condition worsen as the years progress until it improves after a recommended Treatment.The report displays only as a bar graph.

Report Parameters

You select the report parameters at the (unnamed) Filter panel. This becomes available when you press Filter.

You select the parameters for the report such as the:

- The individual years you want to view
- Type of display such as Crack Severity Average or ESA Total.

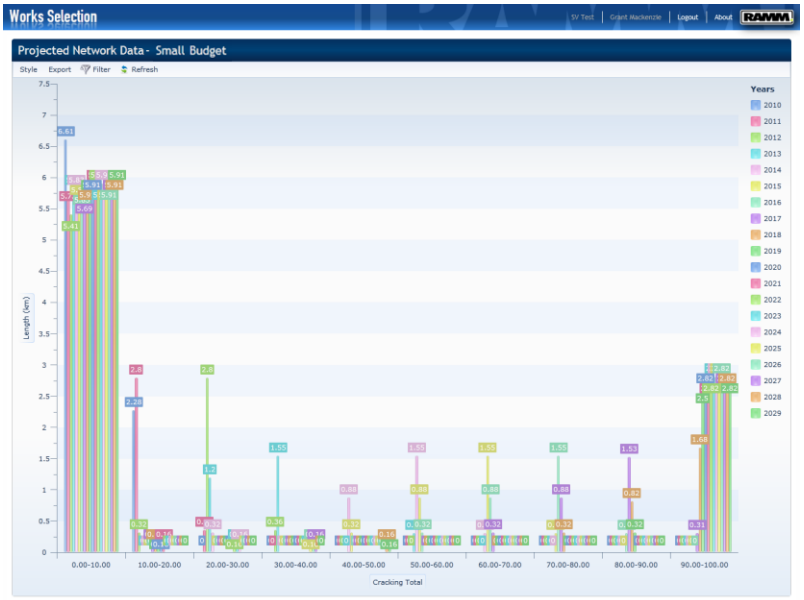


Refresh the Report

If you use the Filter to select different options, the changes will not be revealed until you have pressed Refresh.

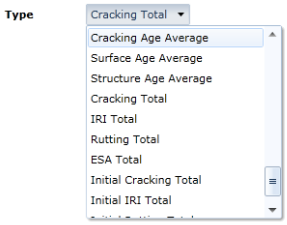
Bar Graph

You do not have the option to select Line, Bar or Stack from the Style drop-down list. The report displays only as a bar graph.



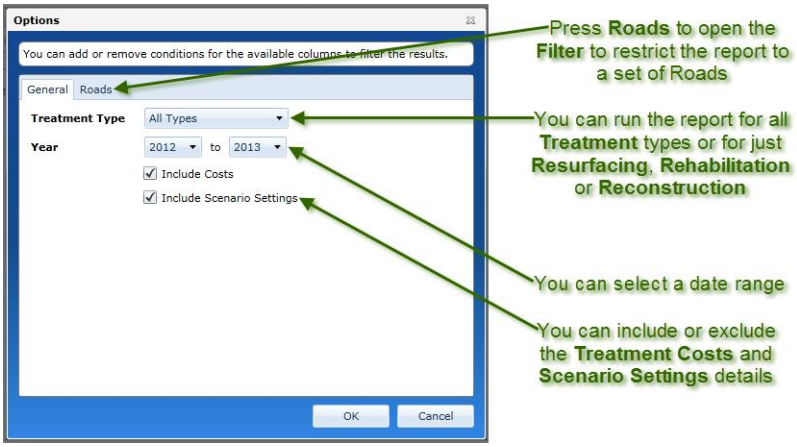
Type

There are a large number of projected data comparisons you can make depending on the parameter Type you select at the Type drop-down list. You can see a few of the options in the graphic below.



Print Treatments Report

You use the Treatments report to generate a printable list of the recommended Treatments for a Scenario. You can limit the list by Treatment Type, Year and Roads. You can also choose not to display the Treatment Costs or the Scenario Settings if it is not appropriate to reveal these to the report's readers. When you press Print Treatments, the report Options dialog opens. You use this to configure the report.



A Defined Set of Roads

You can limit the report to Treatments in a set of Roads which you have defined or you can run the report for all Roads in your Network. You press the Roads tab to open a Filter. You use the Filter to create a Road set for the report.

Treatment Type

You can limit the report to a only Treatments of the same type or you can run the report for all Treatments in your Network. You select the Treatment type from the Treatment Type drop-down list or accept the default All Types value.

Date Range

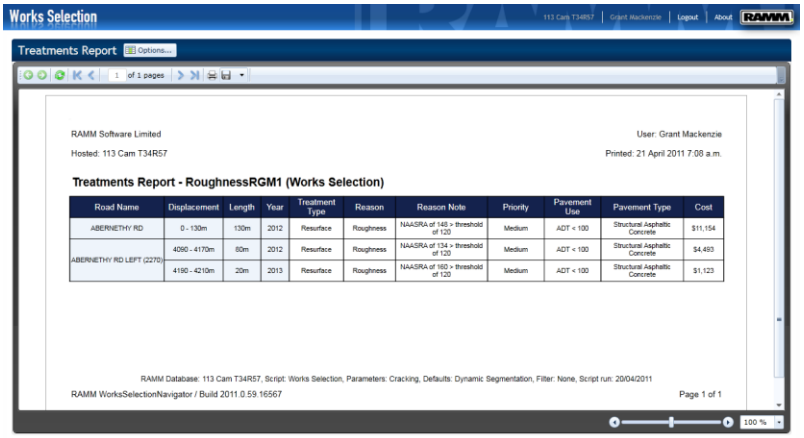
You can limit the report to only Treatments scheduled for a particular date range or you can run the report for the default date range which will be the maximum possible for the Scenario. You select the date range from the Year drop-down lists.

Include Costs

You may want to print the report for an audience which should not see the projected costs of the Treatments. In this case you clear the Include Costs option. If you select this option then the Cost column will be appended to the report.

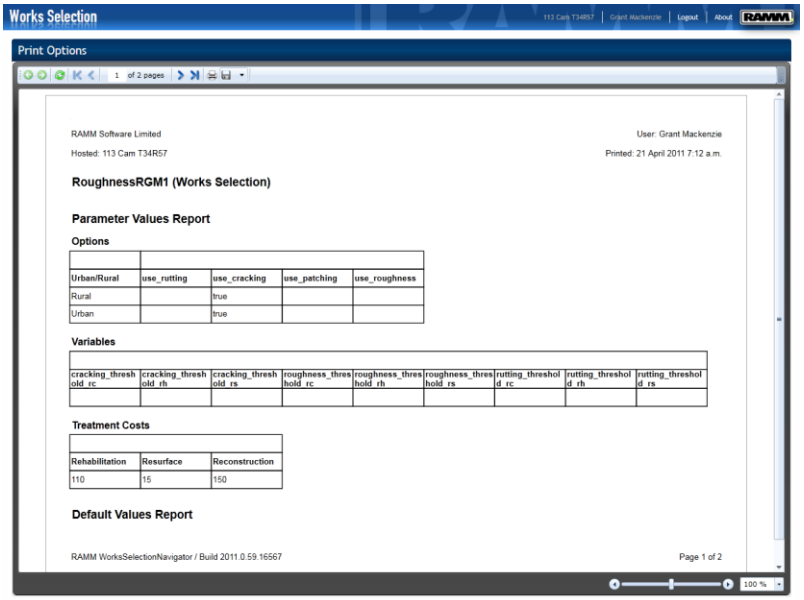
Include Scenario Settings

You may wish to print the details of the Scenario settings. You select the Include Scenario Settings option to achieve this. If it is not appropriate for the report audience to view the details you clear the Include Scenario Settings option.



Print Options Report

You use the Print Treatments report to generate a printable list of the Parameters, Defaults and Filters you have used to generate the recommended Treatments for a Scenario.



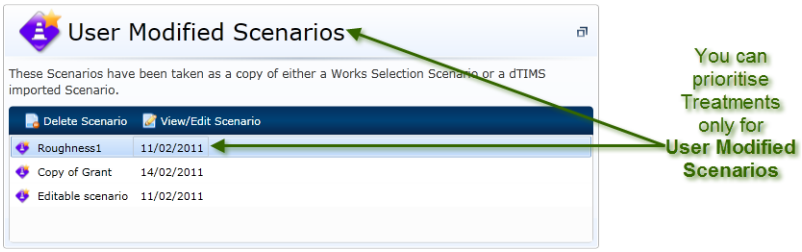
CHAPTER 4

Prioritisation

You prioritise Treatments so that your programme of works best suits your Network and matches the resources available to you. Once you have selected the Scenario which best suits your Network, you set your Budgets and prioritise the Treatments to match those resources and Network Requirements.

You do this so that the most important and affordable Treatments are performed in the next twelve months. Other, less urgent Treatments are deferred to later Budget periods.

You can prioritise Treatments only for Scenarios you have copied. Copied Scenarios are called User Modified Scenarios.



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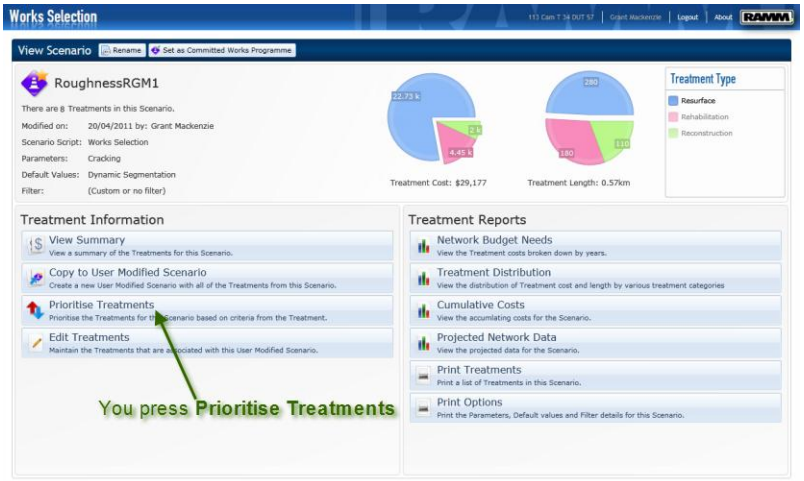
Your Works Programme 61

Scenario Selection

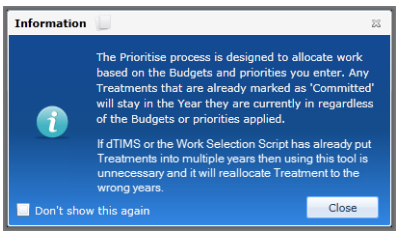
The reasons why you would select one Scenario over another are beyond the scope of this document. Each Network is different and Network Engineers will likely have different imperatives governing their actions and choices.

Once you have run your different Scenarios and compared the results, you will make the decision to select one Scenario.

You are then ready to set your Budgets and prioritise the Treatments.



You set Budgets and prioritise the Treatments at the **Works Selection Prioritisation** page. You press Prioritise Treatments at the **View Scenario** page when viewing a copied Scenario. The following **Information** dialog will open.



You then press Close to open the **Works Selection Prioritisation** page.

NOTE

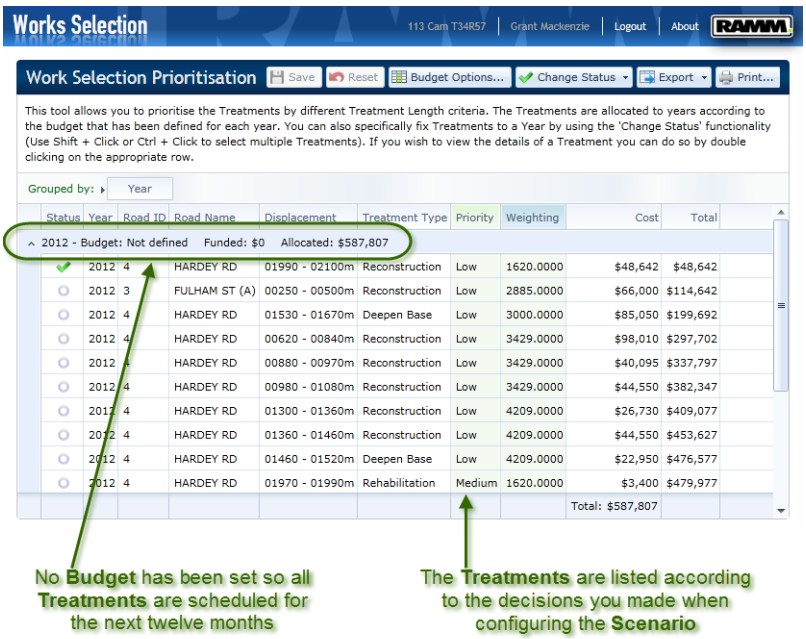
You can prioritise Treatments only for Scenarios you have copied. Copied Scenarios are called User Modified Scenarios.

Then if your prioritisation proves sub optimal you can just copy the original Scenario and start again.

Budgets

When you first open the **Works Selection Prioritisation** page, the Treatments will be listed. The order of the Treatment list will be determined by decisions you made when running the Scenario.

All the Treatments will be scheduled for the first available year. That is because you have yet to set your annual Budgets.



Group Treatments by Year

When you set an annual Budget for the next twelve months, **RAMM** will determine a set of the first Treatments which sum to just below the Budget figure you have defined. It will then group them in the year for which you set the Budget.

All other Treatments will default into the following year.

Then if you set Budgets for following years, the Treatments will default again according to the same logic.

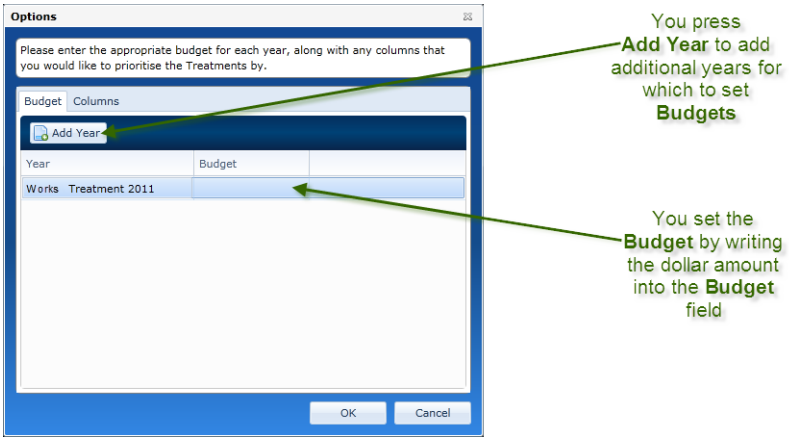
RAMM will create a new sequential year as a bucket for the remaining Treatments if the Budgets you set for the years you create, sum to less than the Treatment cost total.

Set Budgets

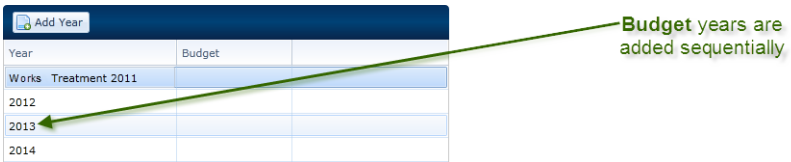
When you first open the **Works Selection Prioritisation** page you should set your Budgets for the next few years. You can then prioritise your Treatments so that the most important ones are scheduled as early as the Budgets will allow.

Options

You press Options on the **Works Selection Prioritisation** tool bar to open the **Options** dialog.



You press Add Year to add another twelve month Treatment period. The new years are added sequentially.



You then type your Budgets into the Budget fields.

When you return to the **Works Selection Prioritisation** page, the Treatments will have defaulted into the years you have added. They will be grouped to sum to just below the Budgets you have set. The Treatments will be listed and prioritised according to the parameters you set when you created and ran the Scenario and any additional Columns you choose.

So this will be your first attempt at setting a programme of scheduled Treatments.

Prioritise Treatments by Column

You will likely want to prioritise your Treatments by parameters which are important to you. Also your data may be more accurate for some parameters than for others. So you would be more likely to want to use the most accurate data for prioritisation.

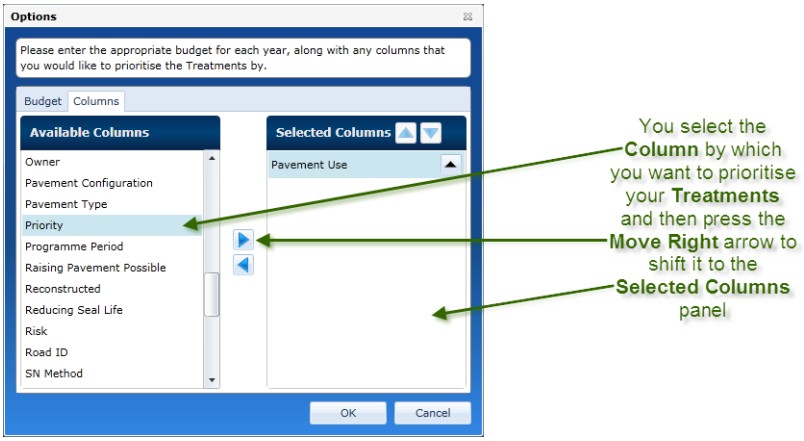
You select the Column parameters at the **Options** dialog. You access this by pressing Options on the **Works Selection Prioritisation** tool bar.

Column Options

You highlight a Column in the Available Columns panel and press Move Right to shift the Column into the Selected Columns panel.

If you change your mind and no longer want to prioritise by the selected Column, you select the Column and press Move Left to shift it to the Available Columns panel.

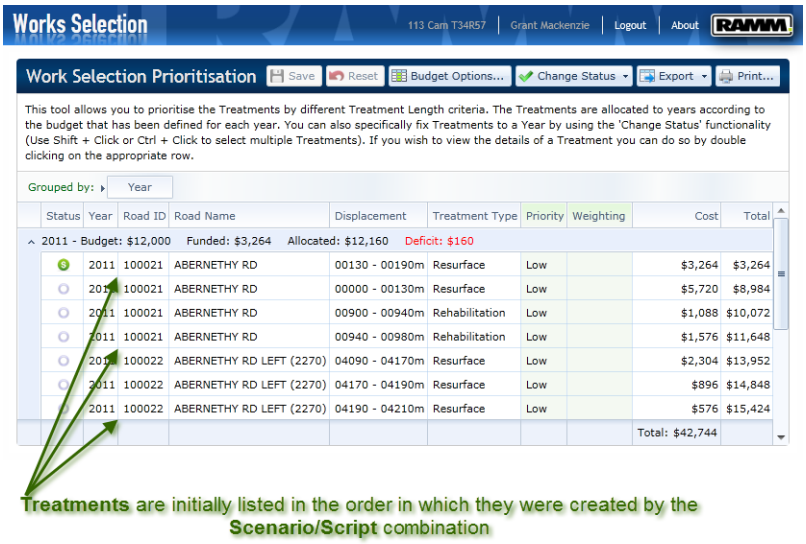
In the graphic below, the user has chosen to prioritise Treatments by their Pavement Use values.



The Treatments will then be listed in the **Work Selection Prioritisation** page grouped and ordered by Pavement Use.

Order and Group Treatments by Column

The Treatments listed in the **Work Selection Prioritisation** page are ordered by the Scenario you have configured and run. Initially, they will be listed in the order in which the Scenario created them.

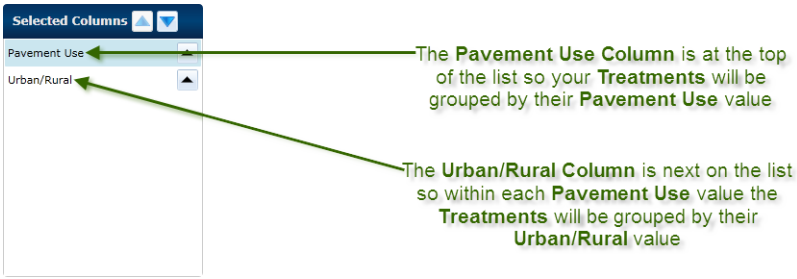


Grouping

You change the order of the Treatments by grouping them according to their characteristics. You do this at the **Options** dialog which you open by pressing Options.

If you have more than one Column by which to prioritise the Treatments, the Column at the top of the list will be the one by which the Treatments are grouped. Within each Column value grouping there will be sub groups for each value of the second Column in the list.

In the graphic below Pavement Use is the Column by which the Treatments will be grouped. For each Pavement Use value, such as <100, there will be two sub groups being Urban and Rural.



You move a Column up the list in the Selected Columns panel by selecting the Column and pressing Move Up . You move a Column down the list in the Selected Columns panel by selecting the Column and pressing Move Down .

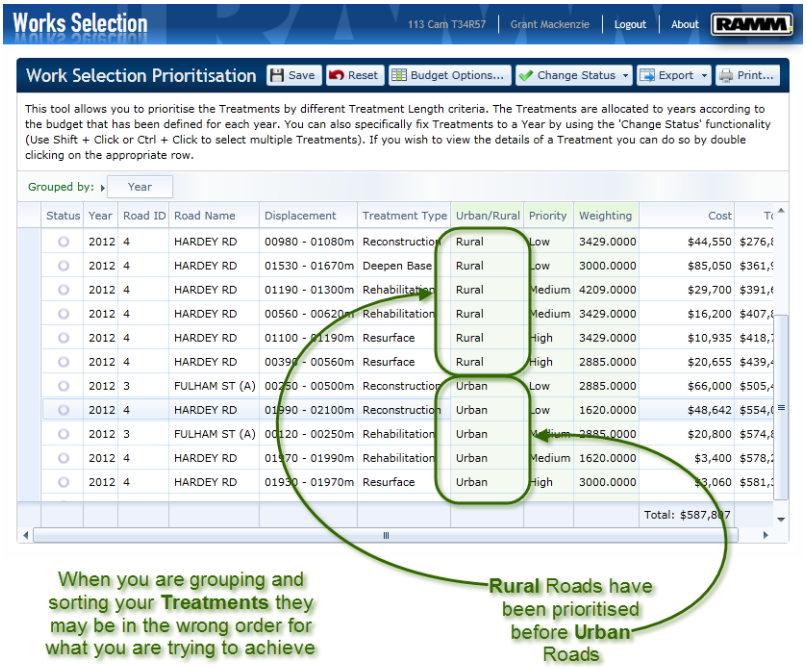
Reverse the Order of Treatments In the List

When you are prioritising Treatments there will be groups of them which you will want to defer, or at least move down the list. A very simple example could be to prioritise all Urban Treatments ahead of all Rural Treatments.

In this case you would select the Column Urban/Rural as the Treatment prioritisation parameter.

Wrong Order

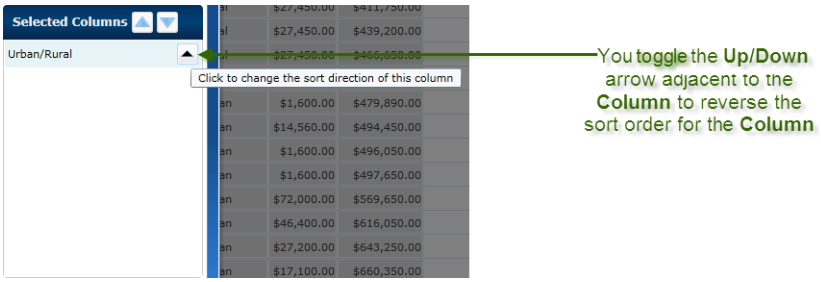
Once you have selected the Column at the **Options** dialog and applied the setting to the Treatment list, you may discover that the Treatments with the characteristics such as Rural which you wanted to send to the bottom of the list, are actually at the top of the list.



Reverse Order at Options Dialog

You use the Up/Down arrow at the Selected Columns panel of the **Options** dialog to determine the order in which the column value groupings will be listed on the **Work Selection Prioritisation** page.

You toggle the Up/Down arrow to change the sort direction of the Column.



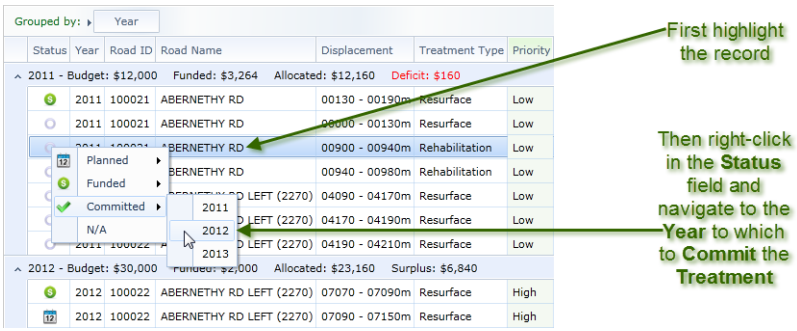
Commit Crucial Treatments

There will be some Treatments which you will want to commit to be performed in the next twelve months whether or not, according to your parameter set, they are high priority.

Similarly, there will be some Treatments which you determine are not required in the near future and should be committed to later years. You have two options for committing Treatments to a particular year. You can highlight the record and right-click in the Status field. The other option is to use Change Status on the **Work Selection Prioritisation** tool bar.

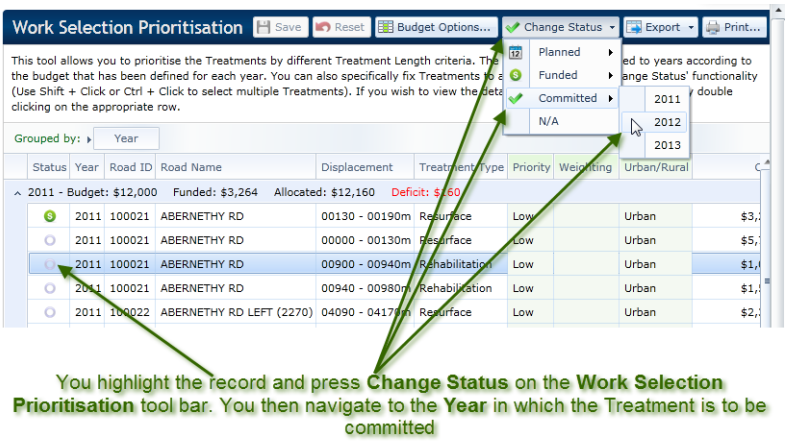
Commit from the Status Field

In the example below, the Rehabilitation at 00900 to 00940 Abernethy Road is scheduled in the 2011 year. The user in the graphic below has right-clicked in the Status field and navigated to the year 2012 into which to commit the Treatment.



Commit from the Tool Bar

If you want to commit a highlighted Treatment to a year different from the one in which it is currently scheduled, you can to use Change Status on the tool bar.



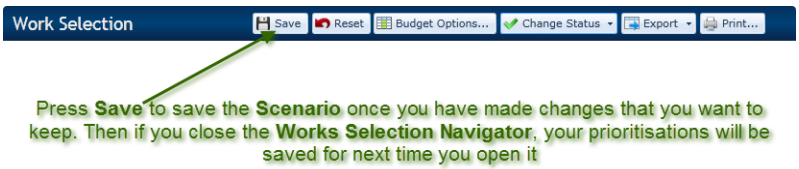
You highlight the record and press Change Status on the Work Selection Prioritisation tool bar. You then navigate to the year into which the Treatment is to be committed.

Works Selection Prioritisation Tool Bar

You will likely spend a great deal of time scheduling Treatments at the **Work Selection Prioritisation** page. A detailed description of the **Works Selection Prioritisation** tool bar will assist you in being as efficient as possible.

Save

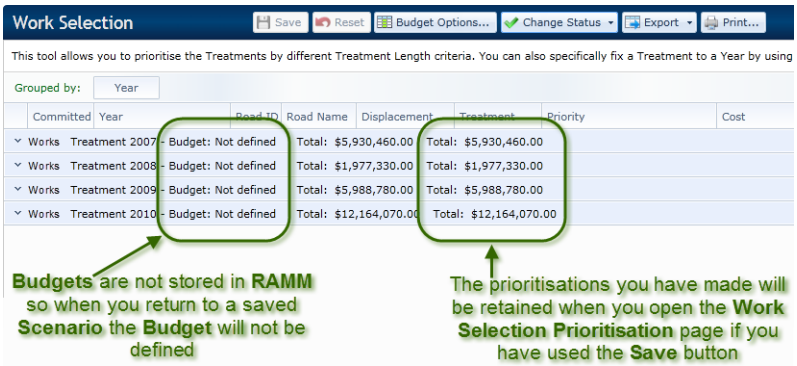
You would use the Save button every time in the prioritisation process that you had made changes which you wanted to keep.



Budgets Not Saved to the Database

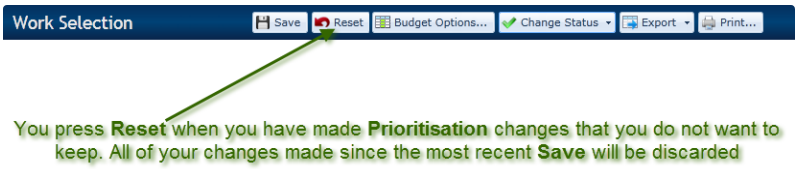
When you set Budgets for your Treatments, **RAMM** sorts the Treatments into years. It groups and lists them automatically based on parameters you have set. The Budget totals are then displayed in the header bar for the years you have set.

Budgets you set at the **Works Selection Prioritisation** page are not stored in **RAMM**. So if you set the Budgets, save the Scenario, exit the program and then return to the **Works Selection Prioritisation** page the Budgets will no longer be defined. The Treatments will still be sorted into years, grouped and listed based on the parameters you have set and the Prioritisation decisions you made and the timing of your last Save.



Reset

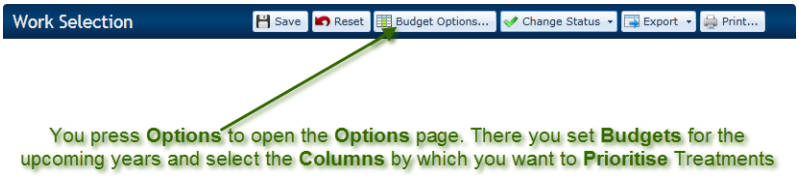
When you have made prioritisation changes you do not want to keep, you press Reset to discard all changes made since the latest Save you have performed.



Budget Options

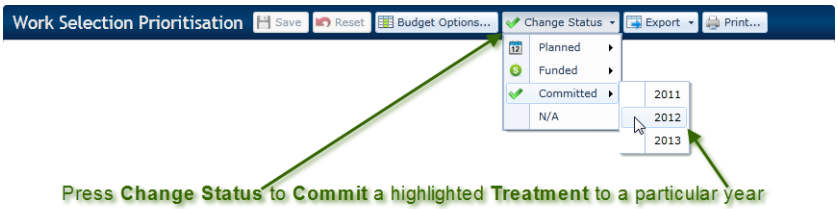
When making prioritisation decisions you have Budget Options.

You can set Budgets for the upcoming years. See Budgets (on page 47). You can select database Columns by which to prioritise Treatments.



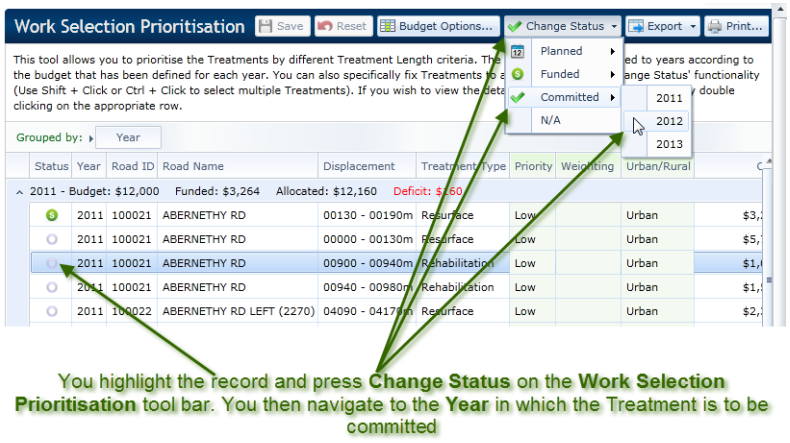
Change Status

You press Change Status to either commit a highlighted Treatment to the programme of works for a particular year, or to undo a commitment.



Commit to a Particular Year

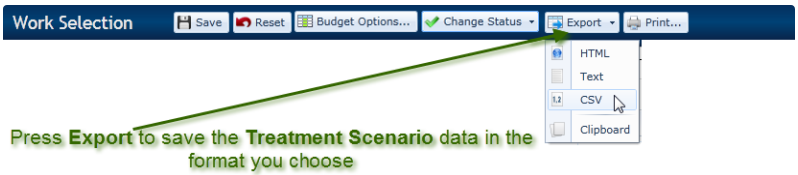
If you want to commit a highlighted Treatment to a year different from the one in which it is currently scheduled, you can to use Change Status on the tool bar.



You highlight the record and press Change Status on the Work Selection Prioritisation tool bar. You then navigate to the year into which the Treatment is to be committed.

Export

You press Export to save your Scenario Treatment data in a format of your choosing.

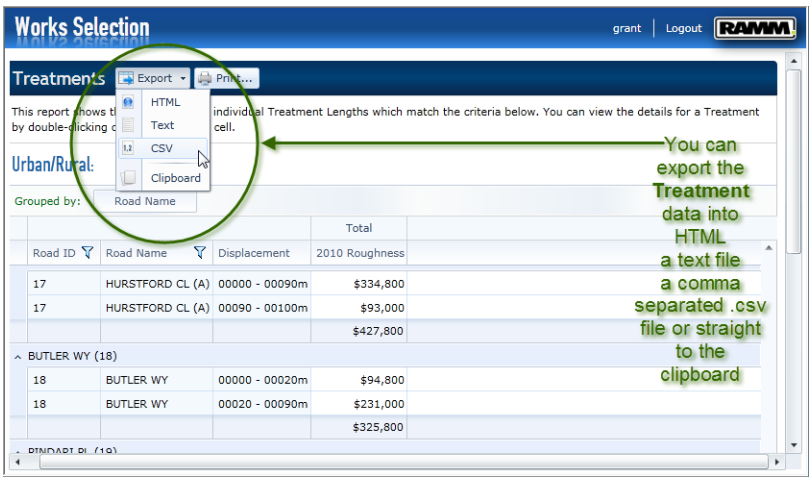


The available formats for Export are:

- HTML
- Text
- CSV
- the clipboard.

Export Treatment Data

You can export your Treatment data from **RAMM** and use it in an external application.



You can export the **RAMM** data to:

- HTML
- Text
- Comma Separated .CSV File

- Clipboard.

HTML

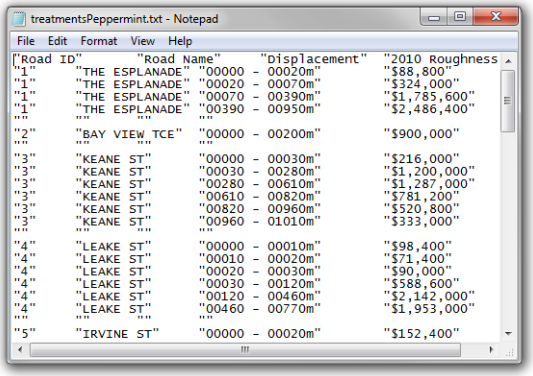
You can export your Treatment data into an HTML file. You follow the menu path Export > HTML. You then have the opportunity to save the data as an .html file in the folder of your choice. The appearance of the file when viewed will depend on your browser. The example below is in Google Chrome.

	Road ID	Road Name	Displacement	2010 Roughness
	1			
	1	THE ESPLANADE	00000 - 00020m	$88,800
	1	THE ESPLANADE	00020 - 00070m	$324,000
	1	THE ESPLANADE	00070 - 00390m	$1,785,600
	1	THE ESPLANADE	00390 - 00950m	$2,486,400
	2			
	2	BAY VIEW TCE	00000 - 00200m	$900,000
	3			
	3	KEANE ST	00000 - 00030m	$216,000
	3	KEANE ST	00030 - 00280m	$1,200,000
	3	KEANE ST	00280 - 00610m	$1,287,000
	3	KEANE ST	00610 - 00820m	$781,200
	3	KEANE ST	00820 - 00960m	$520,800
	3	KEANE ST	00960 - 01010m	$333,000
	4			
	4	LEAKE ST	00000 - 00010m	$98,400
	4	LEAKE ST	00010 - 00020m	$71,400
	4	LEAKE ST	00020 - 00030m	$90,000
	4	LEAKE ST	00030 - 00120m	$588,600
	4	LEAKE ST	00120 - 00460m	$2,142,000
	4	LEAKE ST	00460 - 00770m	$1,953,000

If you want to view or manipulate your Treatment data in Excel, you can not do this directly from the **Treatment Selection Navigator**. You can open the exported .html file in Excel.

Text

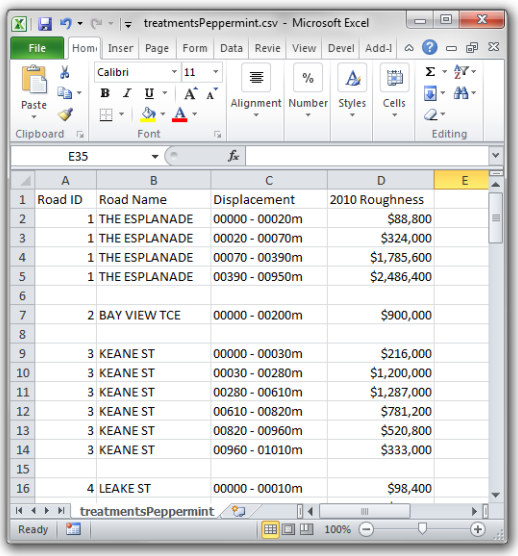
You can export your Treatment data into a text file. You follow the menu path Export > Text. You then have the opportunity to save the data as a .txt file in the folder of your choice. The appearance of the file when viewed will depend on your text editor. The example below is in Notepad.



If you want to view or manipulate your Treatment data in Excel, you can not do this directly from the **Treatment Selection Navigator**. You can open the exported .txt file in Excel.

Comma Separated .CSV File

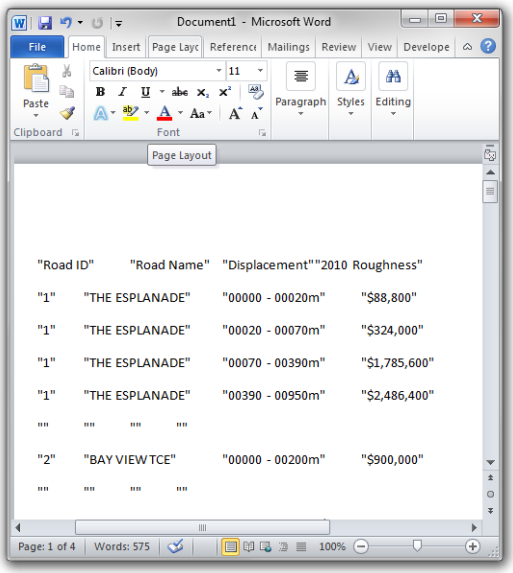
You can export your Treatment data into a comma separated .csv file. You follow the menu path Export > CSV. You then have the opportunity to save the data as a .csv file in the folder of your choice. The appearance of the file when viewed will depend on your text editor. The example below is in Excel.



If you want to view or manipulate your Treatment data in Excel, you can not export directly to Excel from the **Treatment Selection Navigator**. You can open the exported .csv file in Excel.

Clipboard

You can export your Treatment data to the clipboard. You follow the menu path Export > Clipboard. You then have the opportunity to paste your data into the application of your choice. The obvious application to choose is Excel. The example below shows the data pasted into Word 2010.

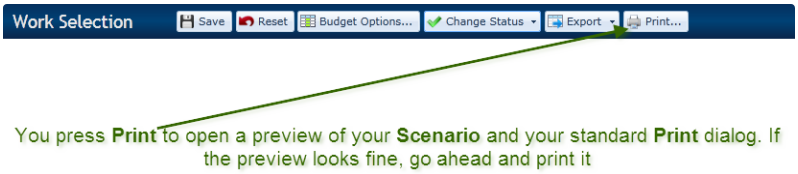


If you want to view or manipulate your Treatment data in Excel, you can not export directly to Excel from the **Treatment Selection Navigator**. You can paste the data which has been exported to the clipboard into Excel.

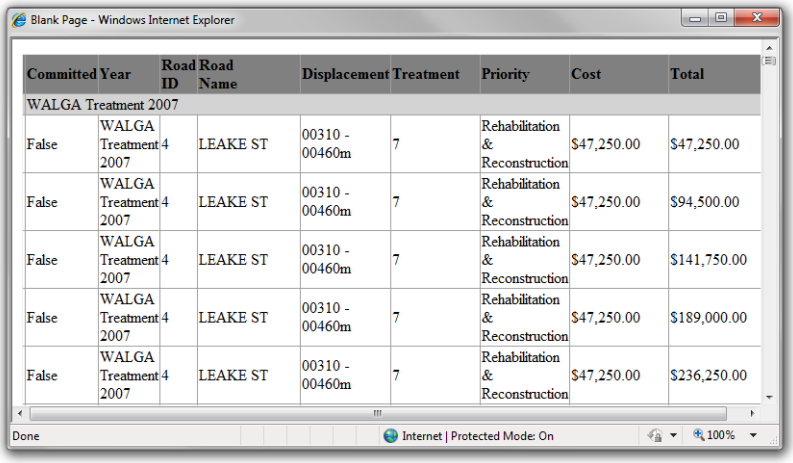
Print

You press Print to open a preview of your Scenario. Your standard **Print** dialog will also open.

If you like the preview you can use the **Print** dialog to print the Scenario in the normal fashion.



Your Scenario preview will display as below.



Committed	Year	Road ID	Road Name	Displacement	Treatment	Priority	Cost	Total
WALGA Treatment 2007								
False	WALGA Treatment 2007	4	LEAKE ST	00310 - 00460m	7	Rehabilitation & Reconstruction	$47,250.00	$47,250.00
False	WALGA Treatment 2007	4	LEAKE ST	00310 - 00460m	7	Rehabilitation & Reconstruction	$47,250.00	$94,500.00
False	WALGA Treatment 2007	4	LEAKE ST	00310 - 00460m	7	Rehabilitation & Reconstruction	$47,250.00	$141,750.00
False	WALGA Treatment 2007	4	LEAKE ST	00310 - 00460m	7	Rehabilitation & Reconstruction	$47,250.00	$189,000.00
False	WALGA Treatment 2007	4	LEAKE ST	00310 - 00460m	7	Rehabilitation & Reconstruction	$47,250.00	$236,250.00

Your Works Programme

When you have prioritised your Treatments and committed them to the appropriate years, you have your draft programme of works.

You can now use this as the basis for the actual work programme.

CHAPTER 5

Works Programme

Now that you have a prioritised Scenario you have the basis for your programme of works.

There are many reasons why you might want to edit the prioritised Scenario. It is possible that your Condition data is not perfect and that some of the recommended Treatments are not necessary. It is also possible that other Treatments will need to be upgraded.

You, or one of your engineers will want to check out the Treatments recommended by the Scenario in the real world. You will then make changes as necessary, but not to the Scenario itself.

Scenarios are not able to be edited. You duplicate the Scenario and edit the copy you have made.

In This Chapter

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Treatment Icons.....67

Move a Treatment to a Different Year.....68

Edit an Existing Treatment 69

Add a Treatment 70

Delete a Treatment.....71

Copy Scenario

You cannot edit a Scenario. So when you need to edit your programme of works, you duplicate the Scenario and edit the copy.

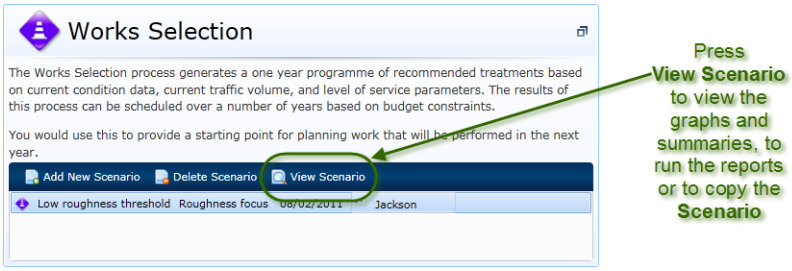
Copy Scenario

Once you have opened a Scenario to view it, so long as the Scenario is not a User Modified Scenario, you can copy the Scenario settings but not its recommended Treatments. You press Copy Scenario. This creates a copy of the Scenario but without the Treatments.

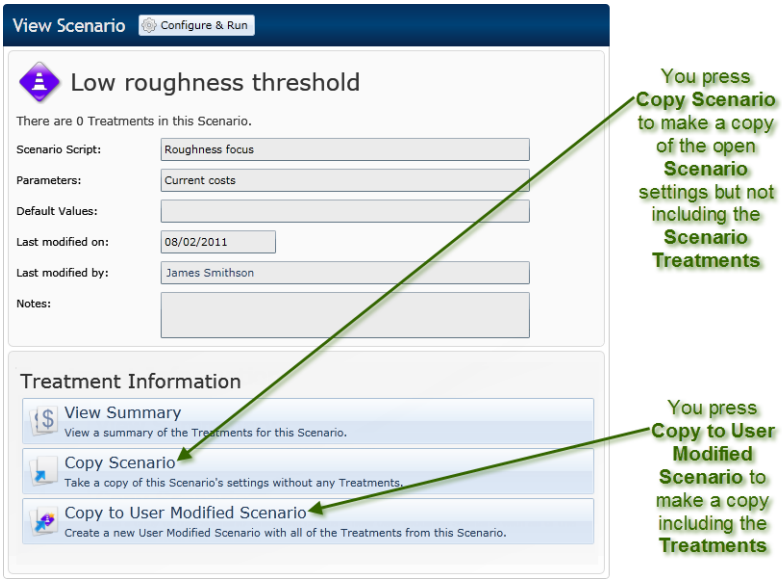
The new Scenario is then added to the Scenarios list.

Copy to User Modified Scenario

You copy a Scenario once you have opened it to view, or if it is a User Modified Scenario, once you have opened it to view or edit.



You press View Scenario to open the **View Scenario** page. From there you press Copy to User Modified Scenario.



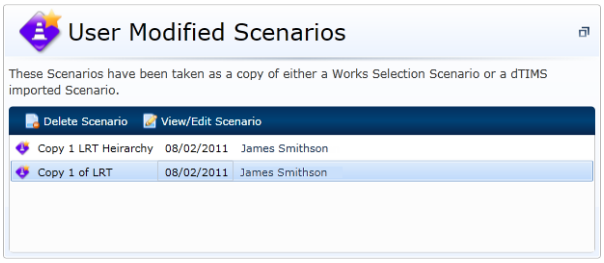
Name the Copy

You then have the opportunity to give the copy of the Scenario a name meaningful to you.

Save the Scenario

When you save the Scenario the **View Scenario** page opens with the copy of the Scenario open for editing.

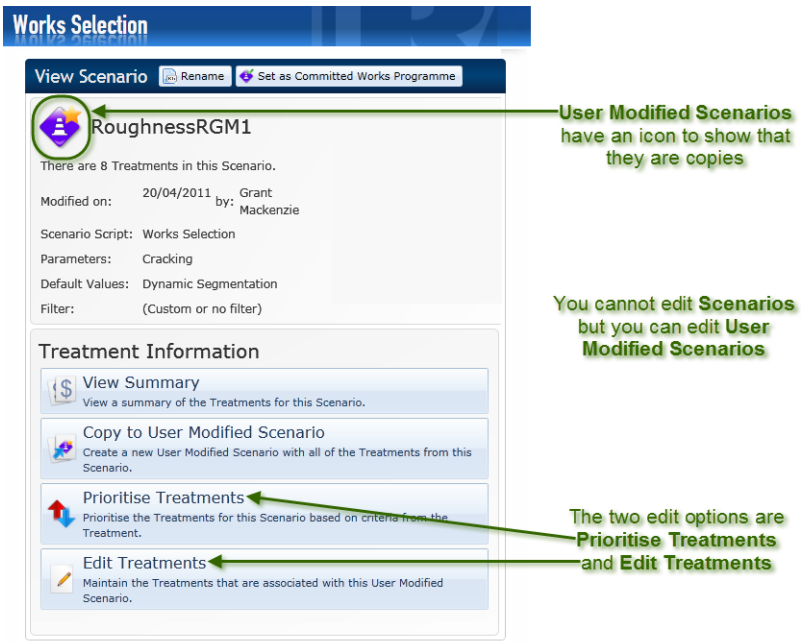
It is also added to the User Modified Scenarios list.



Edit Treatments Option

When you press View/Edit Scenario for the Scenario copy or User Modified Scenario, two new options become available. You may now Prioritise or edit the Treatments.

You press Edit Treatments to open the Treatments for editing.

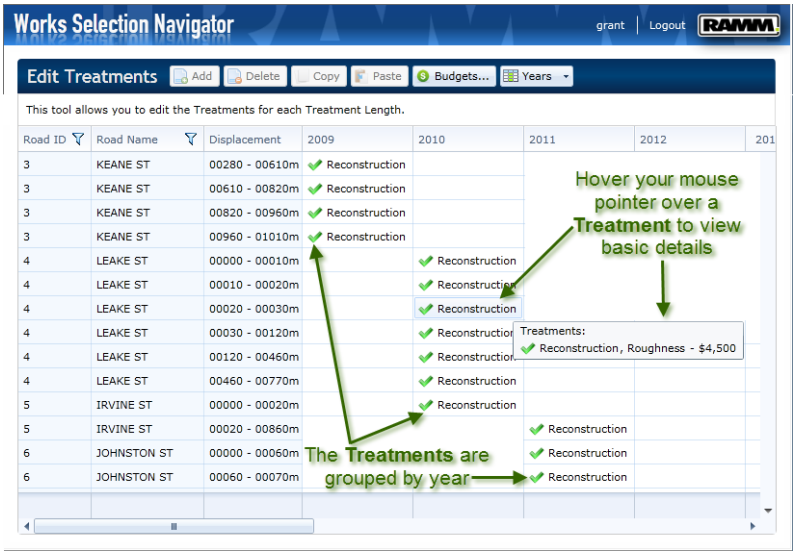


Edit the Treatments

When you first open the **Edit Treatments** page, the Treatments are grouped by year.

View Basic Treatment Details

If you hover your mouse pointer over a Treatment, some basic details display.

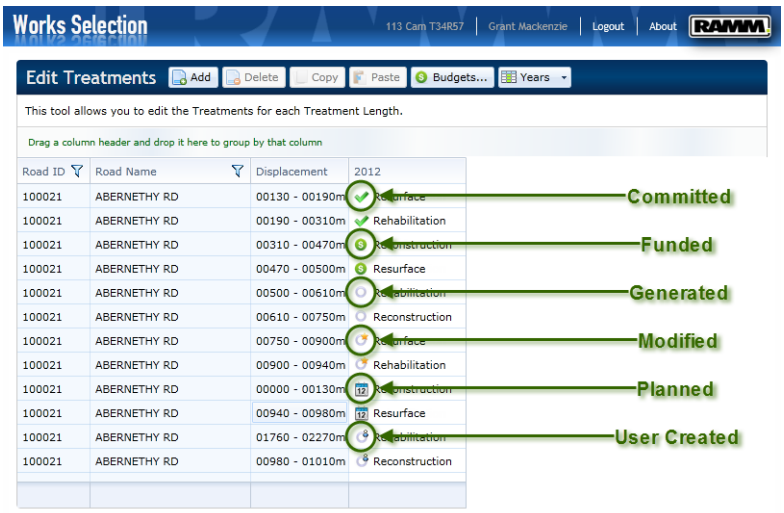


Treatment Icons

When you are editing the Treatments you need to recognise the icons in order to understand the history of the Treatments. They are:

- Committed
  The end user has committed this Treatment to a particular year. The Treatment was probably generated by dTIMS or the Works Selection run.
- Funded
  This is similar to Committed in that the end user has committed this Treatment to a particular year. The difference is that this Treatment has been funded by an external agency and so the cost of the Treatment does not reduce the budget.
- Generated
  The Treatment was generated by dTIMS or a Works Selection run.
- Modified
  The end user has modified this Treatment.
- Planned
  This is similar to Committed in that the end user has committed this Treatment to a particular year. The difference is that this Treatment is likely to have been identified before the dTIMS or Works Selection run.
- User Created
  The end user has created this Treatment rather than dTIMS or a Works Selection run.

Below is a stylised example of their use.

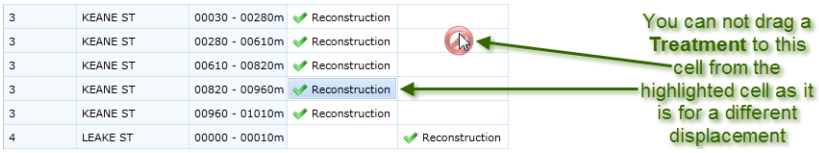


Move a Treatment to a Different Year

You move an existing Treatment from one year to another at the **Edit Treatments** page.

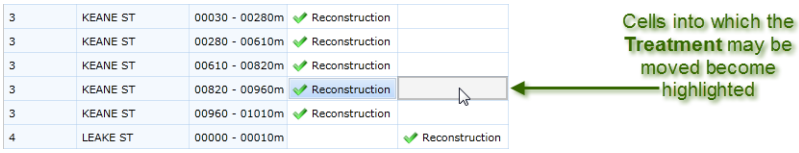
When you want to move a Treatment from one year to another you use your mouse pointer to drag it to the cell for the new period.

As you would expect, you can only drag the Treatment to a cell in the same row. If you place the mouse pointer over a cell to which the Treatment may not be moved a clear prohibition icon appears.



Drag the Treatment to a Highlighted Cell

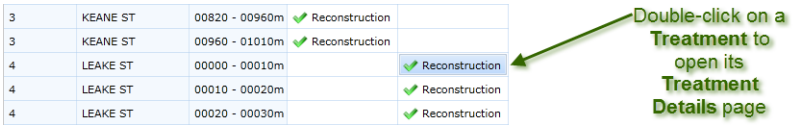
When you drag the Treatment over a cell into which it may be moved, the cell becomes highlighted.



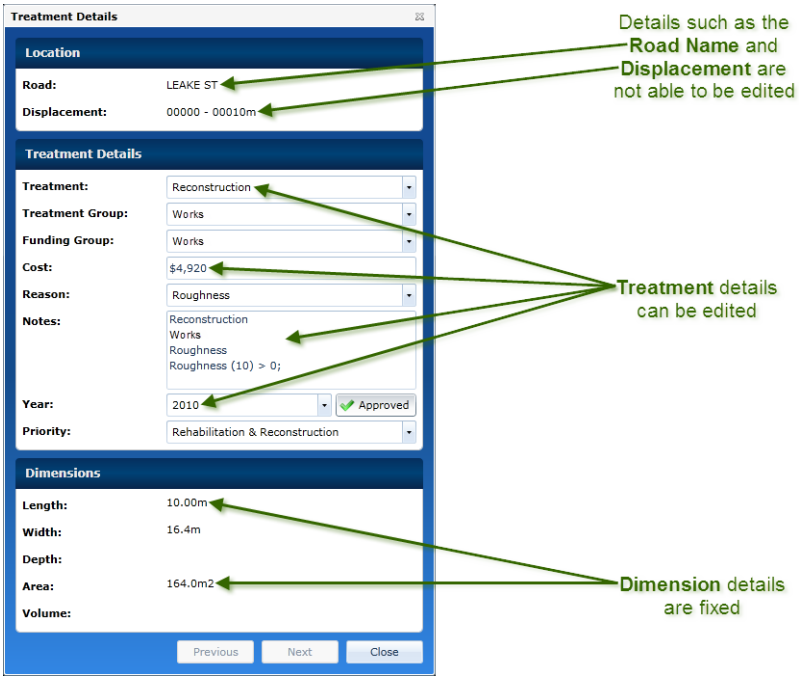
Edit an Existing Treatment

You edit an existing Treatment at the **Edit Treatments** page.

When you double-click on a Treatment the **Treatment Details** page opens.



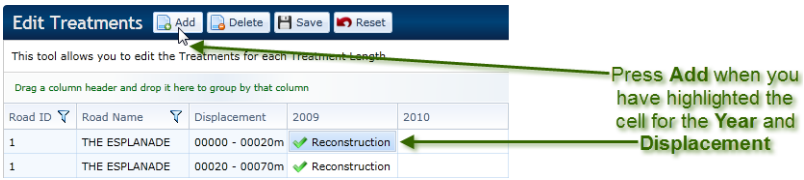
You can view and edit the Treatment at the **Treatment Details** page.



Add a Treatment

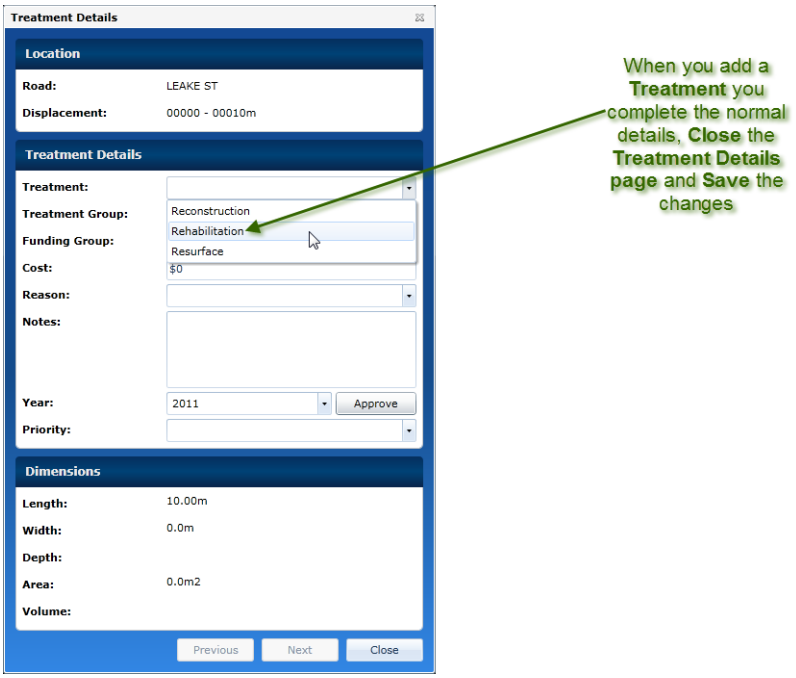
You add a new Treatment at the **Edit Treatments** page.

New Treatments can be added in any year. You can add more than one Treatment for each Displacement either in the same Year or in subsequent Years.



You highlight the cell representing the Year and the Displacement for which you want to add a new Treatment and press Add.

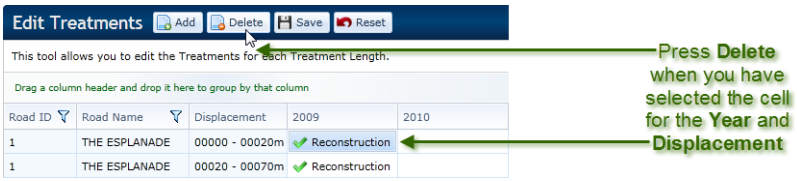
The **Treatment Details** page will open with the Road and Displacement details defaulted. You complete the rest of the details.



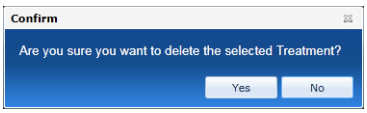
Delete a Treatment

You delete an existing Treatment at the **Edit Treatments** page.

You highlight the cell of the Treatment to be deleted and then press Delete.



A **Confirmation** dialog will open asking if you really want to delete the selected Treatment. Press Yes to proceed and the Treatment will be deleted.



Multiple Treatments in a Cell

If there is more than one Treatment in a cell you will be asked whether you want to delete either or both Treatments.

CHAPTER 6

dTIMS

Deighton Total Infrastructure Management System (dTIMS) is a software tool used to model Pavement Deterioration. **RAMM** provides a method of extracting Treatment Length, Maintenance Cost and related data from the Road Network in a format that can be imported into dTIMS.

The dTIMS deterioration model has been configured to recommend Treatments, to calculate their cost and to extrapolate the future Network Condition. These recommendations are imported into **RAMM** as a Scenario.

You use the **Works Selection Navigator** dTIMS Export Import tool to create a twenty year Road maintenance programme within **RAMM**. This includes the programme for the next year.

In This Chapter

dTIMS Export Import Overview.....74

Define Attribute and Condition Defaults.....75

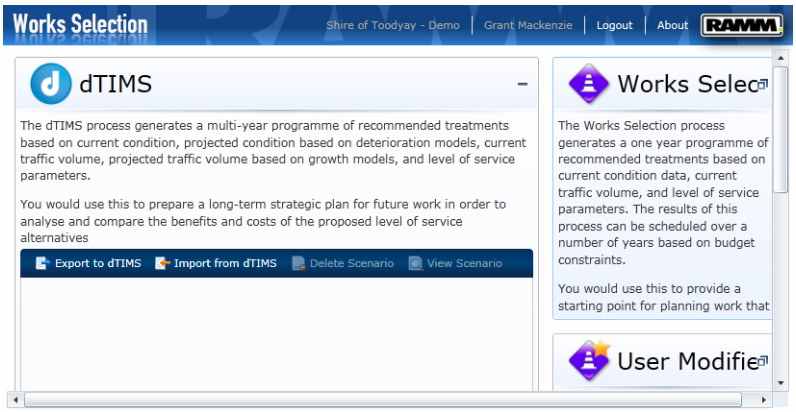
Export Filter 78

Export to dTIMS.....79

Import from dTIMS 80

dTIMS Export Import Overview

You use the **Work Selection Navigator** to Export your Treatment Length data to dTIMS. The dTIMS deterioration model is then applied to your data. The resulting file has been configured to recommend Treatments, to calculate their cost and to extrapolate the future Network Condition. These recommendations become a Scenario once Imported into **RAMM**.



Attribute and Condition Defaults

Your data is the key to successful Scenario creation by dTIMS.

If your data is uniformly complete and of high quality, then it does not need to be adjusted prior to export from your database. If there are gaps in your data then you need to assist the process by setting defaults for particular Parameter combinations. These default values will be used when a Treatment Length does not have data for a column.

When you perform a dTIMS Export you have the option of selecting existing Attribute and Condition Default sets, or you can create a new set. When you create a new set you can choose an existing set to copy values from, which can then be customised.

See Define Attribute and Condition Defaults (on page 75).

You have the option to lock the set of Attribute and Condition default values so that when you Import the Scenario file from dTIMS the Attribute and Condition defaults are unchanged.

See Lock the Set of Defaults (on page 77).

Filter the Network Prior to Export

If you want to test a particular Parameter combination and view the resulting Scenario, you will save time by limiting the Scenario to only a few Treatment Lengths. You use a Filter to achieve this.

You specify a Filter to limit the Scenario to a subset of Roads in the Network. You can Filter by options such as Security Zone, Road Name, Road Type, Hierarchy, Maintained By, Cracking Type and others.

You can save, load the Export Filter and Export Defaults for future exports. You can report on the Filter as well.

See Export Filter (on page 78).

Export to dTIMS

When you Export to dTIMS you specify which Treatment Lengths to Export. The data is Exported to a Microsoft Access Database (MDB) file. It will contain Treatment information such as the Road, Location, Hierarchy, Traffic and Condition summary data.

Also included in the MDB file will be Treatments that have been manually programmed due to engineering knowledge or political and social reasons. See Export to dTIMS (on page 79).

Import from dTIMS

The dTIMS Import process Imports recommended Treatments, Treatments Costs and projected Condition data.

When you Import from dTIMS you select the file containing the results from dTIMS, enter a name for the Scenario and import the data into a new Scenario. You must select the Attribute and Condition Default set which you used when the data were Exported.

Once the Scenario has been Imported you can view the recommended Treatments and run reports from the **Work Selection Navigator**.

See Import from dTIMS (on page 80).

Define Attribute and Condition Defaults

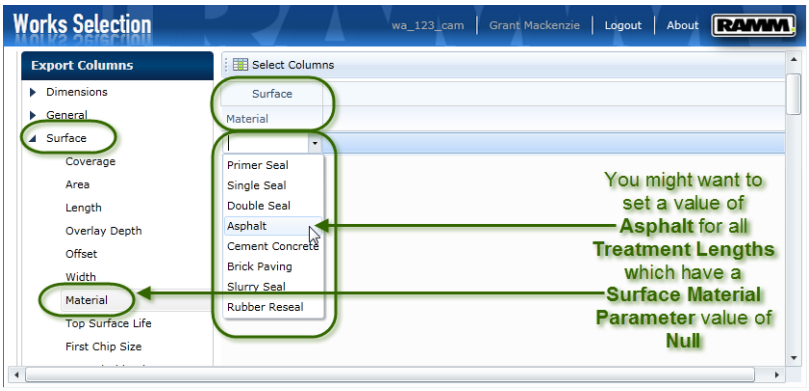
For each Export to dTIMS you can define a different set of Attribute and Condition default values. For instance, you can define a single default value to be applied to all parameters for Treatment Lengths with no value.

You can also define a number of default values for a Parameter dependent on the Characteristic of the Treatment Length.

A Single Default Value

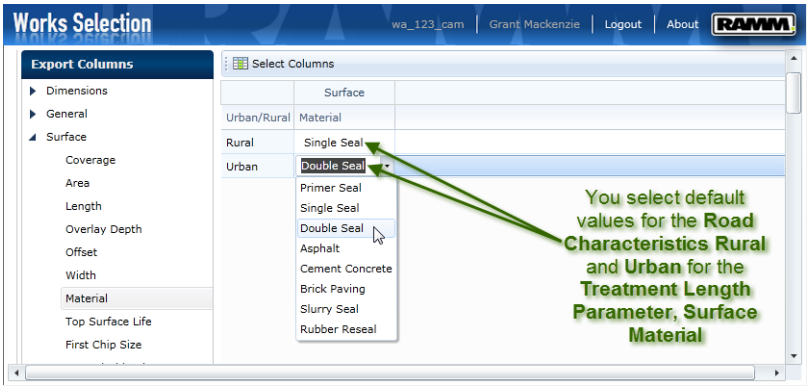
Where you have a Treatment Length Parameter such as Surface Material, you might want to set a single default value of Asphalt. Then when you export your Network data to dTIMS all Treatment Lengths which have a Null value for the Parameter will have the default value applied.

To do this you highlight Surface Material in the Export Columns list panel. You then select Asphalt from the drop-down list in the empty field beneath Material.



Multiple Default Values

If, on the other hand, your Network is more complex and you need to define more than a single default value for your Treatment Length Parameters, you define them for the Treatment Length Characteristics.



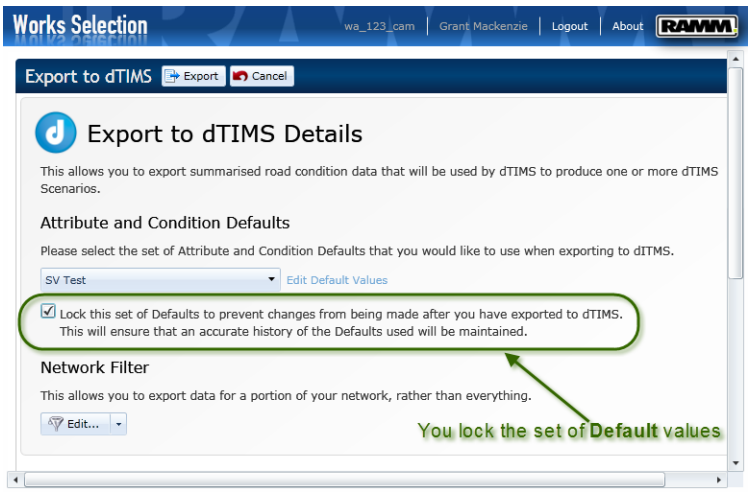
An example could be if you have both Rural and Urban Roads in your Network which mostly have different Surface Materials. So you would define two different Surface Material defaults being, for instance Single Seal for Rural and Double Seal for Urban.

To do this you highlight Surface Material in the Export Columns list panel. You then press Select Columns to open the **Select Criteria Columns** page. You would then select the Urban/Rural column and close the page. You then choose the appropriate values from the drop-down lists adjacent to Rural and Urban as in the graphic above.

Lock the Set of Defaults

When you export your data to dTIMS you define a set of Attribute and Condition Defaults. Standard practice is to lock these so that in the future, when you have imported the Scenario from dTIMS you can refer to the original settings to view them.

You select the option as below.



When Would You Not Lock the Defaults?

The only time when you would not lock the set of Attribute and Condition Defaults would be if you were experimenting with the Import Export process.

If you need to edit a locked set of Attribute and Condition Defaults after you have exported to dTIMS, you can copy the set of Attribute and Condition Defaults and edit the copy.

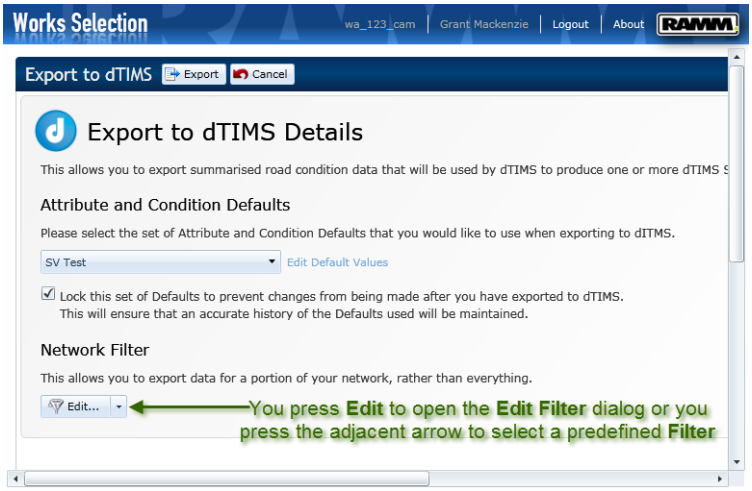
Export Filter

You may want to Export a defined set of Treatment Lengths to dTIMS rather than your entire Network.

Why Use a Filter?

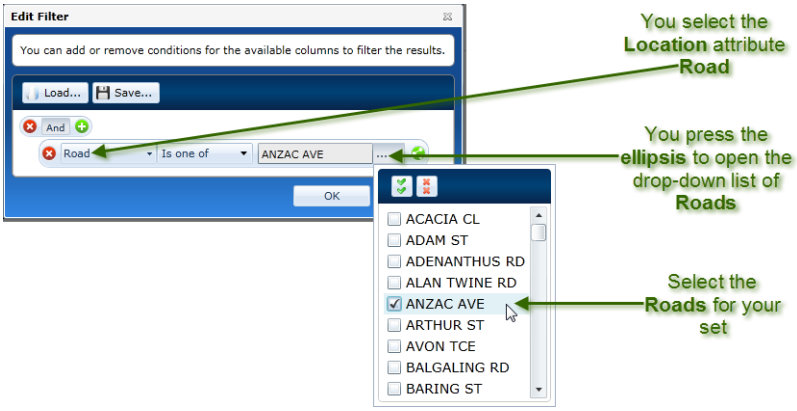
This could be to run the process more quickly. It may be that you have a specific set of Roads which you know well and you want to use only that subset of your Network for comparison purposes. You might want to Export only Treatment Lengths with defined characteristics.

If so you use the **Network Filter** to include or exclude the Treatment Lengths you choose.



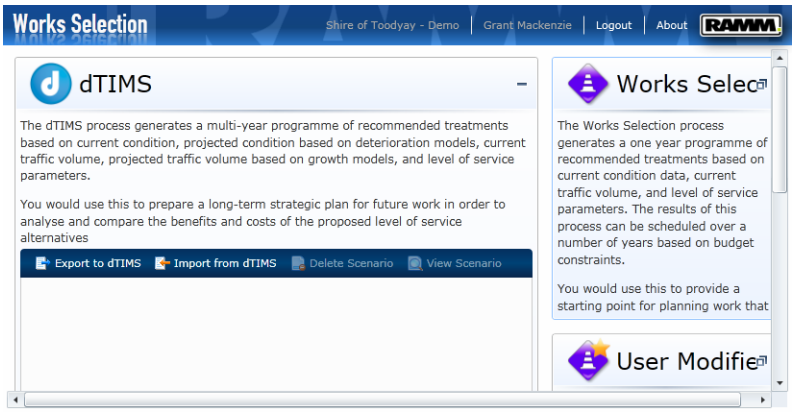
You would most likely use the Filter to restrict the Export to a defined set of Roads or Treatment Lengths so that you can quickly compare the results of different Criteria.

You define the Filter at the **Edit Filter** dialog. The graphic below shows the selection of a set of Roads.



Export to dTIMS

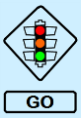
You use the **Work Selection Navigator** to Export your Treatment Length data to dTIMS. The dTIMS deterioration model is then applied to your data. The resulting file has been configured to recommend Treatments, to calculate their cost and to extrapolate the future Network Condition. These recommendations become a Scenario once Imported into **RAMM**.



You press Export to dTIMS. The Export to dTIMS page will open. You set Default values, lock the Default set and Filter any unwanted Treatment Lengths.

Access MDB File

You then press Export. A Microsoft Access .mdb file is created with the Treatment Length data. This is the file for dTIMS.



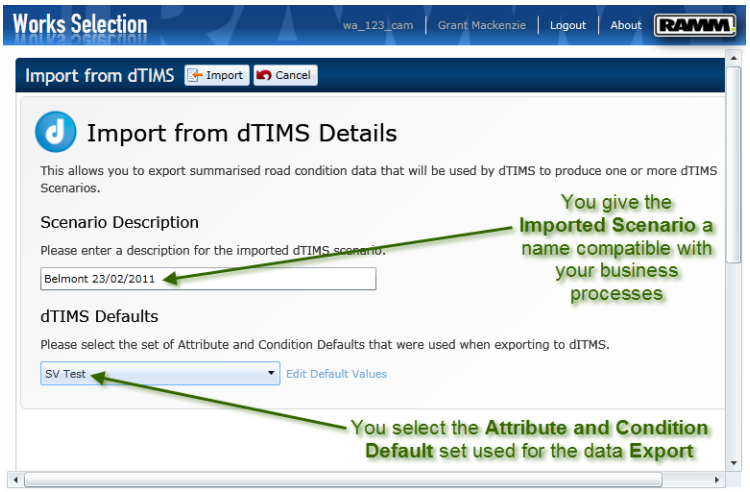
Users will need the correct Staff Permissions to Export data to dTIMS. They will need at least dTIMS Export. See Works Selection Security Permissions (on page 87).

Import from dTIMS

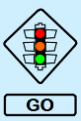
After dTIMS has processed your Treatment Length data you Import the resulting file which is a Scenario containing recommended Treatments, Treatments Costs and projected Condition data for the next 20 years.

Name the Scenario

When you Import from dTIMS you type a name for the Scenario in the Scenario Description field on the **Import from dTIMS** page. You also select the Attribute and Condition Default set which you used when the data were Exported.



The resulting Scenario is then listed in the dTIMS panel of the Works Selection Navigator. You treat it as you do any other Scenario.

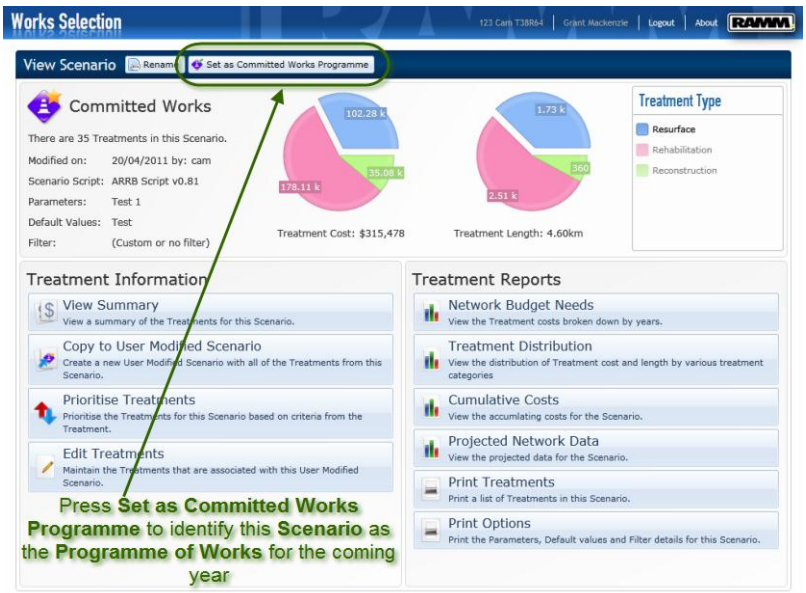


Users will need the correct Staff Permissions to Import data from dTIMS. They will need at least dTIMS Import and Delete. See Works Selection Security Permissions (on page 87).

CHAPTER 7

Committed Programme

When you are satisfied that a particular Scenario of recommended Treatments is the optimum, you set the Scenario as your Committed Works Programme. The Scenario below has been renamed to Committed Works so that the user is clear that this is the Scenario to be used for the Programme of Works.



In This Chapter

Set as Committed Works Programme 82

Identify Committed Works.....83

Works Selection in RAMM.....83

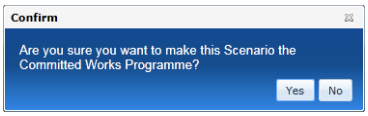
Works Selection Filter.....85

Set as Committed Works Programme

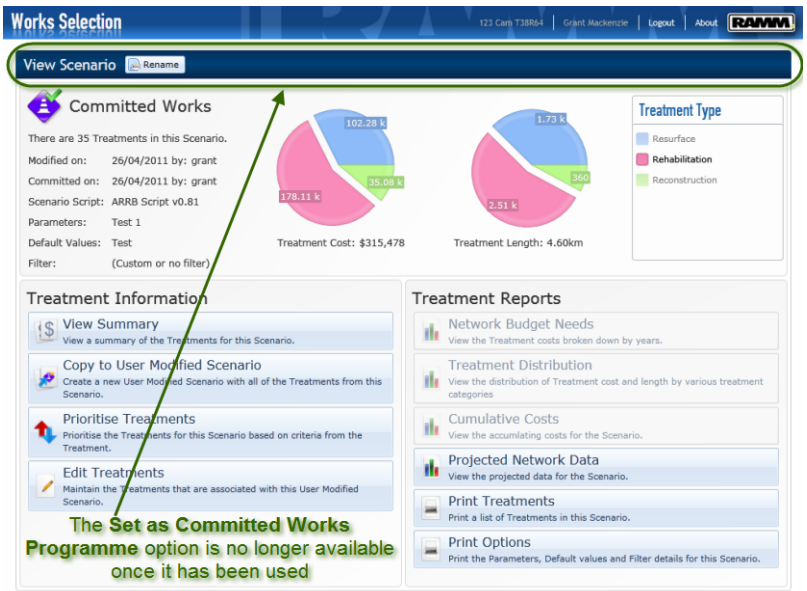
When you have successfully completed your Scenario configuration and prioritisation, you can define the best of your User Modified Scenarios as your Committed Programme of Works.

You press Set as Committed Works Programme to do this.

A **Confirm** dialog will open asking if you really want to do this.



Once you have pressed Set as Committed Works Programme and confirmed that the Scenario will be the Committed Programme of Works, the button becomes no longer available.

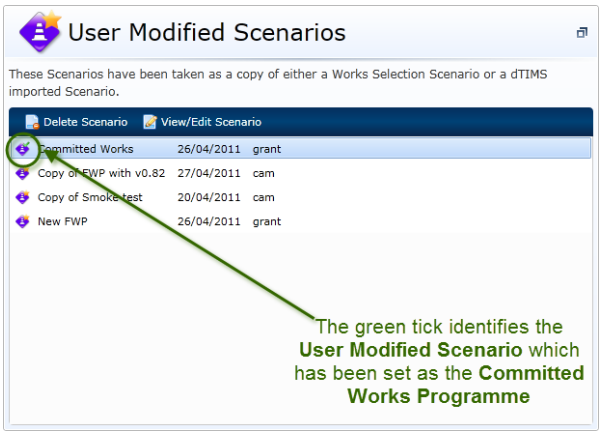


NOTE

Set as Committed Works Programme remains available for other User Modified Scenarios in case you change your mind and want to commit another as your Programme of Works.

Identify Committed Works

When you have set a User Modified Scenario as the Committed Works Programme, it is identified in the User Modified Scenarios list with an icon with a green tick. You will notice that in the example below the user has renamed the User Modified Scenario to Committed Works to ensure that the Scenario is identified as Committed.



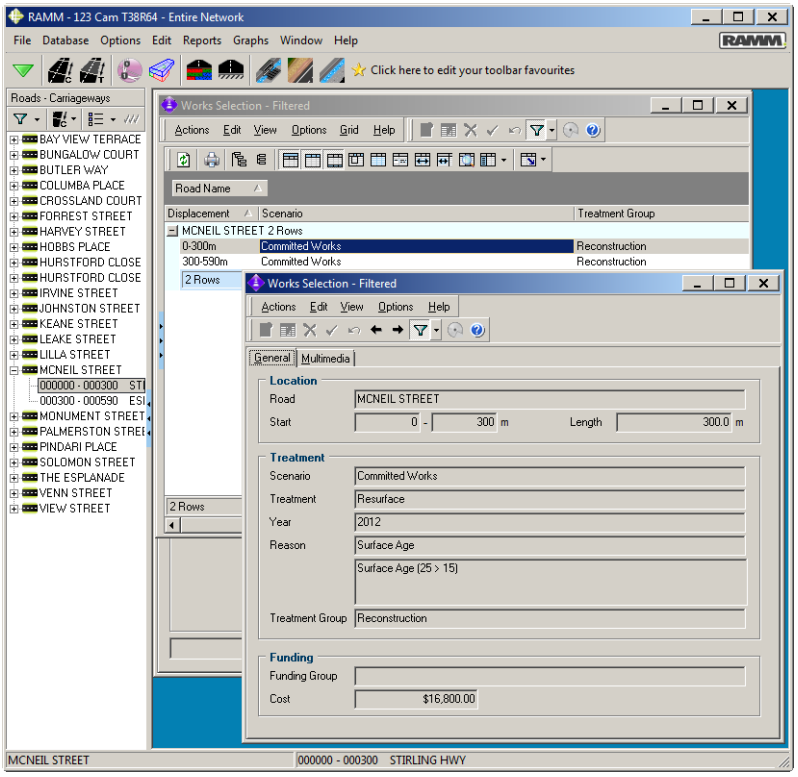
View Details in RAMM

When you view the Works Selection screens in **RAMM** it is the Treatments from the User Modified Scenario set as the Committed Works Programme which will be available by default.

Works Selection in RAMM

When you have set a User Modified Scenario as the Committed Works Programme the Treatments are recognised as Committed in **RAMM**.

You view the details at the **Works Selection** screens.



View Works Selection Details

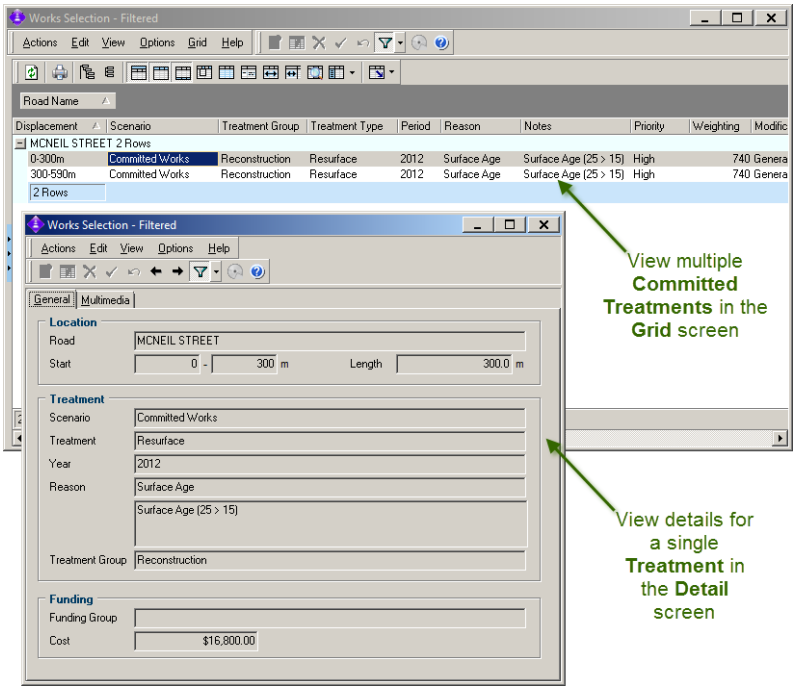
When you first open the **Works Selection** screens in **RAMM**, only the Committed Treatments will display.

Grid Screen

You use the **Works Selection** Grid screen to view all the Treatments for a selected Road. These will be divided into Treatment Lengths. You may find that initially, your Treatment Lengths match your Carriageway Sections. All the usual export and reporting options are available. See the Use Grid Screens chapter of the *Using RAMM* guide.

Detail Screen

You use the **Works Selection** Detail screen to view the details for one particular Treatment. If there are any Multimedia files associated with the Treatment, this is where you access them.



NOTE

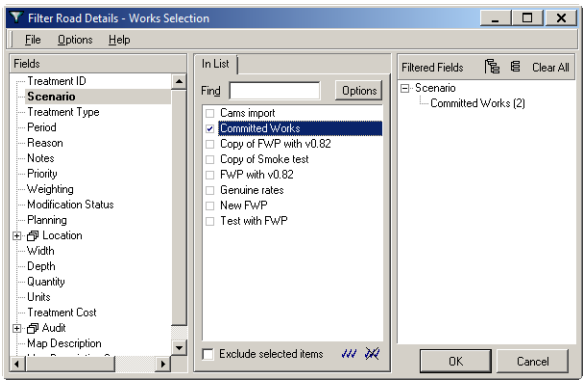
The Treatments are available for you to view only. They are unable to be entered or edited.

Works Selection Filter

The default view for Works Selection in **RAMM** is that details only for the Committed Works display. You use the **Works Selection** Filter to vary this view.

View Uncommitted Treatments

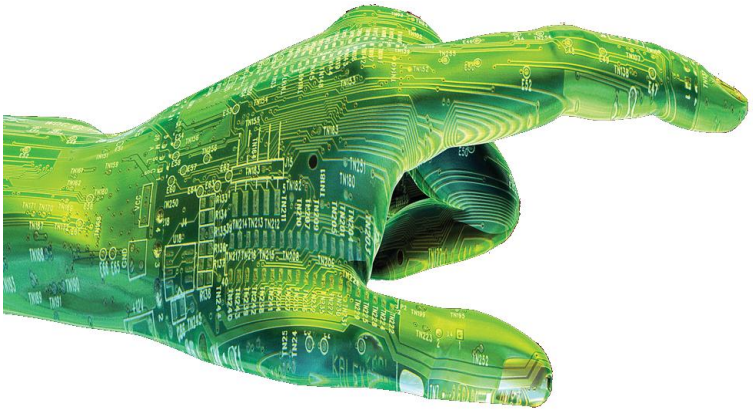
You may need to view alternate Treatments. If so you select the Scenario which generated the recommended Treatments at the In List tab of the **Works Selection** Filter.


Filter Road Details - Works Selection
File
Options
Help
Fields
Treatment ID
Scenario
Treatment Type
Period
Reason
Notes
Priority
Weighting
Modification Status
Planning
Location
Width
Depth
Quantity
Units
Treatment Cost
Audit
Map Description
In List
Find
Options
Cams import
Committed Works
Copy of FWP with v0.82
Copy of Smoke test
FWP with v0.82
Genuine rates
New FWP
Test with FWP
Exclude selected items
Filtered Fields
Clear All
Scenario
Committed Works (2)
OK
Cancel

CHAPTER 8

Works Selection Security Permissions

Staff Permissions are access rights granted to specific users and groups of users. They are authorisations for users to view or maintain specific aspects of **RAMM**. You set Staff Permissions for users, firstly, to manage their access to **RAMM** and, secondly, once they have accessed **RAMM**, to limit their actions to those which they need in order to perform their normal work activities.



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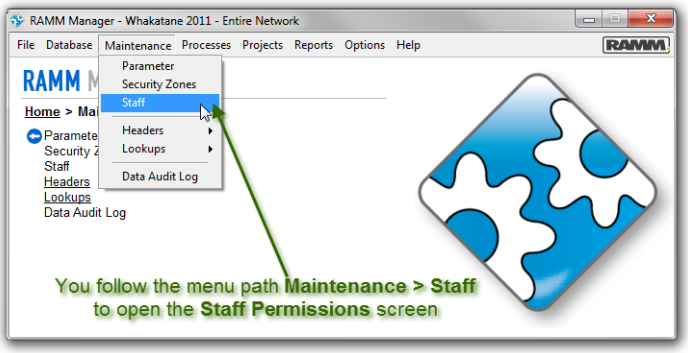
Staff Permissions Introduction

You set **RAMM Works Selection** Staff Permissions in **RAMM Manager**. You follow the menu path Maintenance > Staff. See the Security chapter of the *Working with RAMM* guide for general information on setting Staff Permissions.



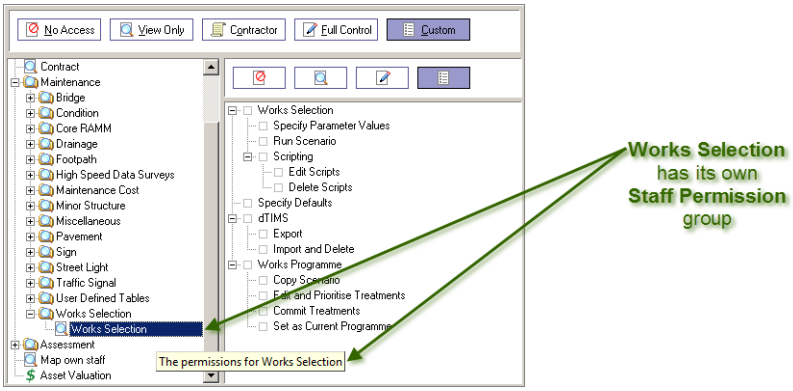
You set **RAMM Works Selection** Staff Permissions so that users can perform their normal tasks but cannot access information and pages they do not require.

You can set Works Selection Staff Permissions with a high level of granularity. You can grant each of the following Staff Permissions independently from the others:

- Parameters, edit
- Scenarios, run, copy, edit and delete
- Scripts, maintain
- Defaults, set up
- dTIMS, export to and import data from
- Treatments, edit, prioritise and commit
- Programme of Works, set as the Current Programme.

Maintenance > Works Selection

Works Selection has its own Staff Permissions group under Maintenance.

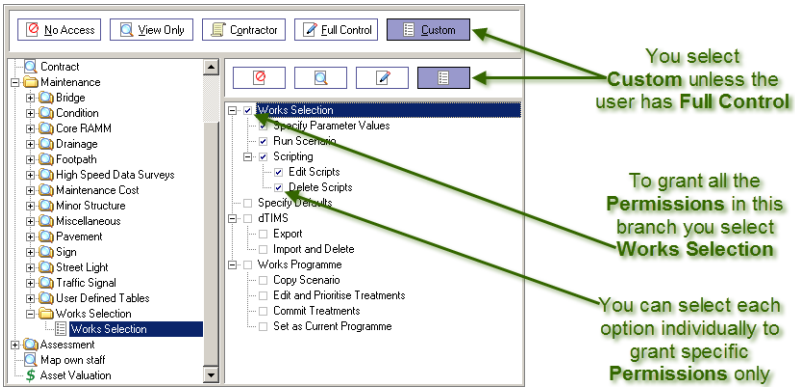


If you have the correct Staff Permissions you may set these Works Selection Permissions yourself.

If you do not have Permission to set these Works Selection Permissions, see your Systems Administrator.

Works Selection Permissions

The Works Selection Staff Permissions are grouped together under the Works Selection branch of the Staff Permissions tree. You toggle this option to grant or revoke all the individual Permissions below at once.

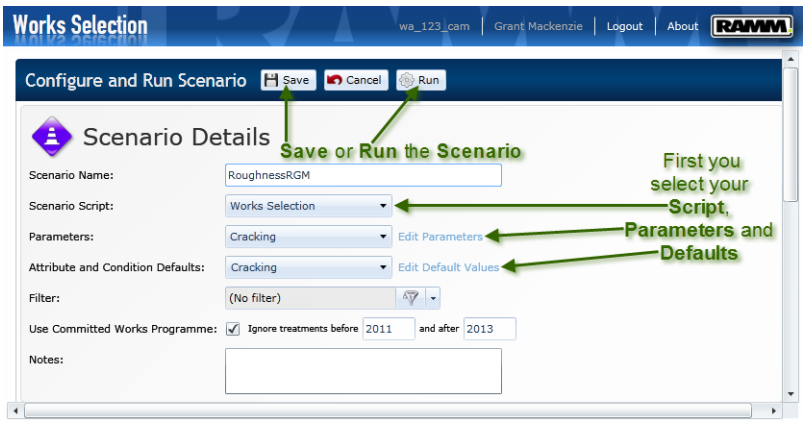


Specify Parameter Values

You need the Specify Parameter Values Staff Permission to maintain and define Parameters prior to running a Scenario. See Select or Edit Parameters (on page 11).

Run Scenario

You need the Run Scenario Staff Permission to be able to run Scenarios.



Edit Scripts

You need the Edit Scripts Staff Permission to edit the Scripts used as the basis for Scenarios.

If you use the standard **RAMM** Script without alteration nobody in your organisation needs this Staff Permission.

Delete Scripts

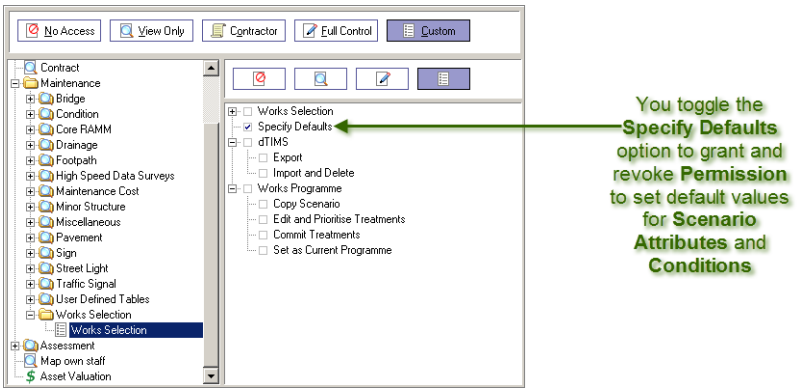
You need the Delete Scripts Staff Permission to delete the Scripts you have created as the basis for Scenarios.

Users with this Staff Permission can delete only user defined Scripts. They cannot delete the the standard **RAMM** Script.

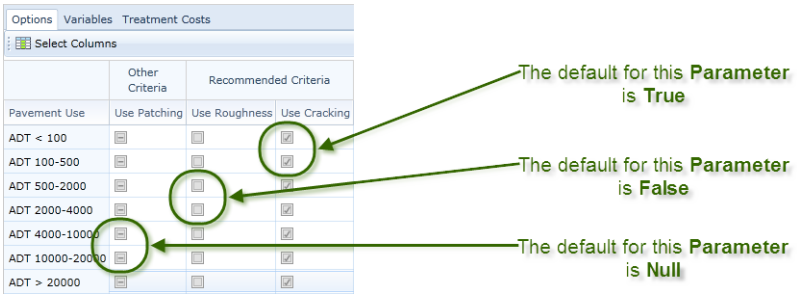
Defaults Permissions

The Specify Defaults Staff Permissions are unified in the single Specify Defaults branch of the Staff Permissions tree. You toggle this option to grant or revoke the individual Permissions below.

You need the Specify Defaults Staff Permission to define default values for Scenario Attribute and Condition values. See Boolean Options (on page 16).



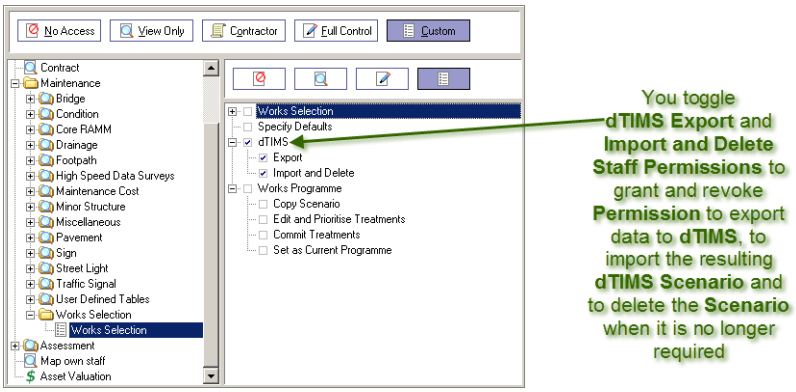
You can define sets of Scenario Script Attribute and Condition default values. For instance, you can define a single default value to be applied to all Parameters for Treatment Lengths with no value. You can also define a number of default values for a Parameter dependent on the Characteristic of the Treatment Length.



dTIMS Permissions

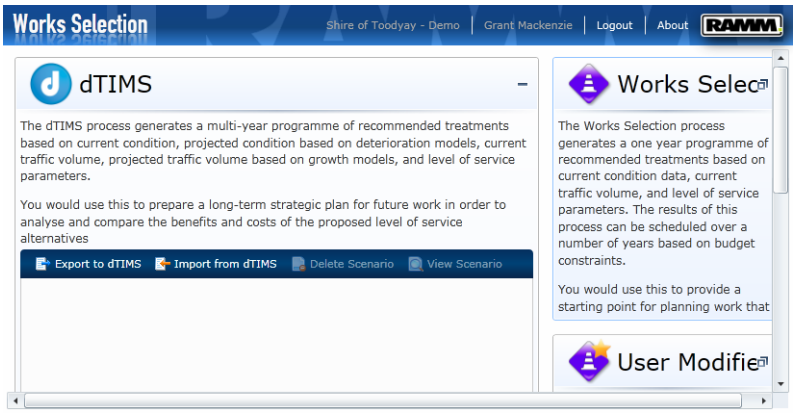
The dTIMS Export, Import and Delete Staff Permissions are grouped together under the dTIMS branch of the Staff Permissions tree. You toggle this option to grant or revoke all the individual Permissions below at once.

You need the dTIMS Export and Import and Delete Staff Permissions export data to dTIMS and to Import a Scenario from dTIMS. See dTIMS Export Import Overview (on page 74).



Export

You use the **Work Selection Navigator** to Export your Treatment Length data to dTIMS. The dTIMS deterioration model is then applied to your data. The resulting file has been configured to recommend Treatments, to calculate their cost and to extrapolate the future Network Condition. These recommendations become a Scenario once Imported into **RAMM**.



Import

The dTIMS Import process Imports recommended Treatments, Treatments Costs and projected Condition data.

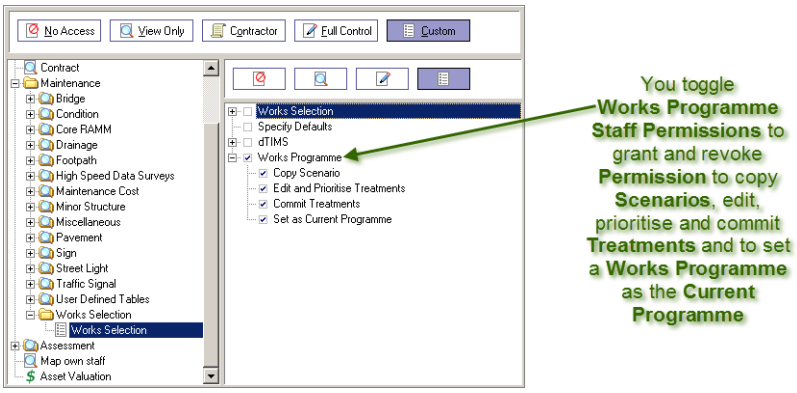
When you Import from dTIMS you select the file containing the results from dTIMS, enter the Scenario details and import the data into a new Scenario. You must select the Export Header used for the Export.

Once the Scenario has been Imported you can view the data and run reports from the **Work Selection Navigator**.

Works Programme Permissions

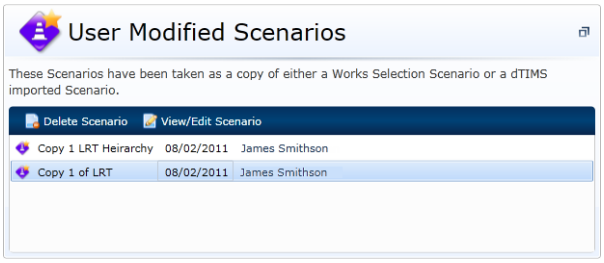
The Works Programme Staff Permissions are grouped together under the Works Programme branch of the Staff Permissions tree. You toggle this option to grant or revoke all the individual Permissions below at once.

You need the Works Programme Copy Scenario, Edit and Prioritise Treatments, Commit Treatments and Set as Current Treatment Staff Permissions to define your Programme of Works once you have run your Scenario.



Copy Scenario

You cannot edit a Scenario. So when you need to edit your Programme of Works, you duplicate the Scenario and edit the copy. The copy of the Scenario is then listed in the User Modified Scenarios.

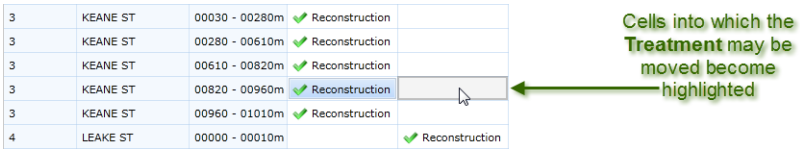


Edit and Prioritise Treatments

You double-click on a Treatment to open the Treatment Details page. There you view and edit Treatments.

You prioritise Treatments to ensure that the most important Treatments are scheduled to be performed earliest. You do this by shifting high priority Treatments into the year for the next twelve months and shifting less important Treatments into later years.

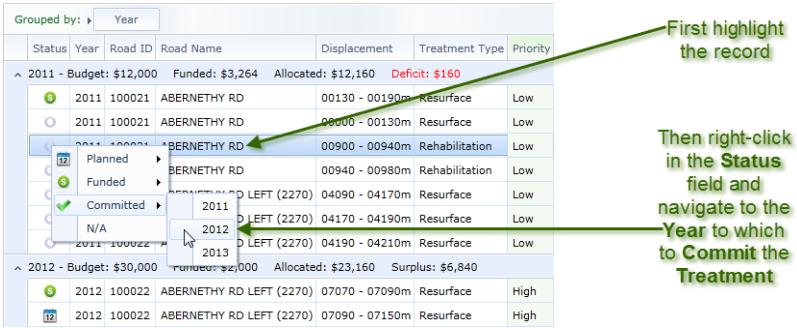
When you drag the Treatment over a cell into which it may be moved, the cell becomes highlighted.



Commit Treatments

There will be some Treatments which you will want to commit to be performed in the next twelve months whether or not they are high priority, based on your parameter set. Similarly, there will be some Treatments which you determine are not required in the near future and should be committed to later years.

You have two options for committing Treatments to a particular year. If the Treatment is already listed in the correct year you simply toggle the Committed field. If the Treatment needs to be placed in a different year, you use Commit on the **Work Selection Prioritisation** tool bar.



Set as Current Programme

When you are satisfied that you have the defined the optimum Works Programme you set the Programme as the Current Programme.

Glossary

Asset

An Asset is an item in a Network which has a value. It could be a physical component of a Road, such as its Surface. It could be something real such as a Bridge, a Footpath or a Street Light. Where no table exists in **RAMM** for one of your Asset Types, you set up a User Defined Table (UDT) to manage the Assets.

Condition

In **RAMM** Assessment the Condition of an Asset describes its fitness or readiness for use. Typical **RAMM** and NAMS Conditions are Excellent, Good, Average, Poor and Very Poor. Assessment Condition Weighting is used to determine Risk of Failure and the Consequences of Failure.

Condition Parameter

A Condition parameter is a quantifiable expression of a specific defect in an Asset. Examples of pavement Condition parameters are roughness, surface texture, skid resistance, edge break and deflection. Condition parameter reporting can be either by bins or distress levels or on a continuous numerical scale. Examples of bins or distress levels are Good, Fair and Bad. Examples of parameters which use a continuous numerical scale are IRI, rut depth, rack width, % area patched.

Cracking

Cracking is a pavement defect signified by vertical splitting of the pavement due to the action of traffic or environmental loading or material characteristics. It is usually identified as visible discontinuities at the surface, not necessarily extending through the entire thickness of a course or pavement.

Custom Security Switch

Custom is one of the settings of the Global Security Switch. When you individualise the Permissions for a user, the Global Security Switch is automatically set to Custom.

You manage access to **RAMM Contractor** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM Contractor** to which they need access in order to be able to perform their normal work tasks.

Where the Global and preset Security Groups do not match the Staff Permission Set required for a particular staff member, you define an individual Security Profile for the user.

To do this you use a range of switches covering different aspects of the data and **RAMM Contractor** functions. Each of these switches, such as the one used to enable a user to maintain Claim Headers, has a hierarchical series of preset levels defined. For instance, this allows you to give a user View Only access so they can see but not touch, or to give them View and Update access. The

latter case would allow a user to make changes to the Claim Headers.

Database

This is a structured collection of data that is stored in a computer so that an application can consult it to answer queries. In **RAMM**, this is a particular Road Network. It is possible that you will use more than one **RAMM** database, especially if you work with more than one Road Controlling Authority.

Defect

A Defect is the visible evidence of an undesirable Condition in the Asset affecting serviceability, structural capacity or appearance.

Detail Screen

Detail screens in **RAMM** are used for working with Road Inventory, Condition and other items one at a time. You use them to view and maintain details for one item only at a time.

dTIMS

Deighton Total Infrastructure Management System (dTIMS) is a software tool used to model Pavement Deterioration. **RAMM** provides a method of extracting Treatment Length, Maintenance Cost and related data from the Road Network in a format that can be imported into dTIMS.

Export

When you have data in **RAMM** which you would like to use in another application, you export the data. To export data is to save the data from the **RAMM** database. This may involve converting the data into a particular file format. Once exported, the data can be used by an application that recognizes the exported format.

Filter (Database Filter, Grid Filter)

Filters are the screens which you use to sort the data in Detail or Grid screens according to selected criteria. You use these to streamline the information you see in **RAMM** such as in the Roads list panel.

Full Control Security Switch

Full Control is one of the settings of the Global Security Switch. It allows the user Permission to access, add, update or delete any record and to run any process. You manage access to **RAMM** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM** to which they need access in order to be able to perform their normal work tasks. If you set a user to Full Control it means that all the individual Permission switches for that user are set to Full Control.

Global Security Switch

RAMM Security uses a Global Switch to grant preset levels of database access. This sits on top of the individual switches and allows

you to set a specific range of values across all the individual switches in one go. This switch has four settings:

- No Access
- View Only
- Full Control
- Custom Settings.

You manage access to **RAMM** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM** to which they need access in order to be able to perform their normal work tasks.

Grid Screen

The Grid screen in **RAMM** is a visual report writer. You use Grid screens to work with multiple Road Inventory, Condition and other items. You adjust the Grid Layout so that is looks right and it suits your purposes. You can then view, export or print the displayed details.

Import

When you have data existing in a file which you would like to use in **RAMM**, you import the data. To import data is to enable the **RAMM** database to load it. Once successfully imported, the data can be used by **RAMM**.

NAASRA

National Association of Australian State Road Authority (NAASRA) is the body that devised the common roughness meter. It is now known as Austroads.

NAASRA Roughness Meter

The NAASRA Roughness Meter is a standard mechanical device used extensively in Australia and New Zealand since the 1970s for measuring Road roughness by recording the upward vertical movement of the rear axle of a standard station sedan relative to the vehicle's body as the vehicle travels at a standard speed along the Road being tested. A cumulative upward vertical movement of 15.2 mm corresponds to one NAASRA Roughness Count (1 NRM/km).

Network Inventory

Your Network Inventory is your **RAMM** database records including real items such as a Bridges and Footpaths as well as your Survey and other data such as Crashes and Bylaws. Your Condition data such as Roughness and your report data such as **RAMM** 3D do not form part of your Network Inventory.

No Access Security Switch

No Access is one of the settings of the Global Security Switch. It denies a user any access at all to a **RAMM** database.

You manage access to **RAMM Contractor** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM Contractor** to which they need access in order to be able to perform their normal work tasks.

If you set a user to No Access it means that all the individual Permission switches for that user are set to No Access.

Pavement

The pavement is the portion of the Road placed above the subgrade for the support of, and to form, a running surface for vehicular traffic. A pavement usually comprises subbase, base and wearing surface layers.

PII

The Pavement Integrity Index (PII) is a performance indicator for the structural condition of a pavement. It is calculated by combining Condition ratings, Faults and roughness. The lower the PII, the better the condition.

RAMM

Road Assessment and Maintenance Management (**RAMM**) is software developed and supported by RAMM Software Limited. This software is used by Road Controlling Authorities (RCAs) to manage Road Inventory Assets and Condition for their Network.

RAMM Condition Items

RAMM Condition items generally measure the fitness or readiness for use of **RAMM** Inventory items. They have their own **RAMM** screens . Typical Condition items are Roughness, High Speed Rutting and Skid Resistance. These are used to describe the Condition of your Roads.

RAMM Inventory Items

The **RAMM** Inventory is all of your **RAMM** database records including real items such as a Bridges, Footpaths and Street Lights as well as your other data such as Bylaws. Your Condition data such as Roughness and your report data such as **RAMM** 3D do not form part of your Network Inventory.

RAMM Manager

RAMM Manager is the module in the **RAMM** suite of products which you use to set up Lookups, to maintain Staff Permissions, to run processes such as Status Check, and to run reports.

RAMM Software Ltd

This is the company which specialises in the development of software for the roading industry. Its core product, **RAMM** (Road Assessment and Maintenance Management) has been the benchmark in road asset management software in New Zealand for over 20 years. **RAMM** is now a suite of software products including **RAMM Contractor**, **Pocket RAMM**, **RAMM SQL**, **RAMM Manager**, **RAMM Network Manager** and the **RAMM** CAR Manager.

Rating

Rating is the process of recording the state of a Road by measuring the extent of the deterioration which has occurred. This includes factors such as the length of Cracking and Potholes. This is sometimes referred to as Condition Rating.

Risk

Risk, sometimes referred to as Risk of Failure, is a measure used in **RAMM** Assessment. It is calculated from a combination of values for the Likelihood of Failure and the Consequences of Failure for an Asset.

Road

For Local Authorities, a Road denotes a single named Road that is part of their Network. For State Highways, a Road is a segment of the State Highway.

ROMAN II

ROMAN II is the replacement for ROMAN which has been the Road Inventory, Condition Assessment and deterioration modelling tool used by Local Governments (LGs) in Western Australia since 1994. The replacement software is the **RAMM** suite of applications.

Roughness

Roughness is a Condition parameter. It characterises deviations from the intended longitudinal profile of a Road Surface. It has characteristic dimensions that affect vehicle dynamics and hence Road user costs, ride quality and dynamic loading on pavements and Bridges. It is a measure of surface irregularities with wavelengths between 0.5 m and 50 m in the longitudinal profile of one or two wheel tracks in a traffic lane reported in dimensionless units as either IRI m/km or as NAASRA Roughness Meter counts for the lane.

Scenario

A Scenario is a projected plan for determining the future Treatments required in your Network. Scenarios include the potential cost of those Treatments. When using **RAMM Works Selection** to decide which works to schedule, you use Scenarios to show the effect of different parameters on the cost of Treatments. The parameters you use will depend on your Network and the accuracy and completeness of your data.

Security Role

A Security Role is an item you create with Staff Permissions, as if it were a User Profile. Then, where there is a group of users who perform the same tasks as each other, rather than define individual Staff Permissions for each User Profile, you associate the User Profiles with one Security Role. This makes it faster grant a new user the appropriate Staff Permissions. You can also change the Staff Permissions for a whole group of people by changing the

Permissions associated with their Security Role.

Security Zone

User access to **RAMM** is managed by a combination of Permissions, global security parameters, individual Security Profiles, Security Roles and Security Zones. A Security Zone is a portion of the Network. It is defined as a collection of Roads. This could be all Roads in a geographical area. Alternatively, it could be a group of Roads with a common characteristic such as Rural.

Staff Permissions

Staff Permissions are access rights granted to specific users and groups of users. They are authorisations for users to view or maintain specific aspects of **RAMM**. You set Staff Permissions for users, firstly, to manage their access to **RAMM** and, secondly, once they have accessed **RAMM**, to limit their actions to those which they need in order to perform their normal work activities.

Surface Texture

Surface Texture is a condition parameter to characterise the average height between peaks and troughs in the surface of a Road. Macrotexture depth is usually the reported condition parameter for Surface Texture and may be reported as mean texture depth as obtained from the sand patch test method.

Treatment

A general term to describe an action planned or implemented to make the Road safer in the context of a response to low skid resistance.

Treatment Length

A Treatment Length is a section of a Road with consistent performance and purpose. For example, it could have the same Top Surface material and Annual Average Daily Traffic (AADT) count along its length. A Treatment Length may have had similar Treatments applied along its length and is often different from its adjoining sections.

View Only Security Switch

View Only is one of the settings of the Global Security Switch. It allows the user Permission only to view records and not to run any processes or to add, update or delete any records.

You manage access to **RAMM** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM** to which they need access in order to be able to perform their normal work tasks.

If you set a user to View Only it means that all the individual Permission switches for that user are set to View Only.

Works Selection

You use **RAMM Works Selection** to plan your programme of works for your Network. You generate a programme of recommended

Treatments and Treatment Costs by creating a Scenario. The recommendations are based on your current Condition data, traffic volume and level of service parameters which you set. You can create Scenarios for as little as the next twelve months or you can use the dTIMS Export and Import to create Treatment Scenarios for the next twenty years. You can then view, report, prioritise and graph the projected Treatments, Treatment Costs and the Condition data. You check these out and decide whether to accept the recommendations or to run a different Scenario.

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