

Contacts

The following are possible contacts that may be able to provide you with help or information regarding Quick-Silver.

1. Mike Vasievich 517-355-7740 mvasievich/@fs.fed.us or mvasie@pilot.msu.edu
2. Mike Retzlaff 303-275-5157 mretzlaff@fs.fed.us
3. Doug Smith 509-684-7182 dhsmith@fs.fed.us

Advanced Default Database Procedures

Quick-Silver currently uses MS Access97 database formats. Any manipulation you perform on the default database inside MS Access 2000 will require you to convert the database to an Access 2000 format and then back to an Access 97 format. These procedures should only be tried if you are experienced with MS Access.

Creating Relationships In Default Database

If you would like Quick-Silver to change the name of the category for all the costs and benefits categories automatically when you change the category name in the category list follow the steps below. Also, if you would like Quick-Silver to change the units name automatically for all activities when you change the units name in the units list follow the instructions below.

1. Create a copy of the original default database and give it a file name of tempqs.mdb.
2. Make sure it's in the same folder as the original default database (QSSystem.QSS).
3. Open MS Access...then click cancel so you do not open up a database yet.
4. Select **Tool/Database Utilities/Convert Database/To Current Access Database Version** from the MS Access menu.
5. When the **Database to Convert From** dialog box opens, select tempqs.mdb
6. Give the converted database any name you want...does not matter at this point.
7. Open that database.
8. Open the costcategory table in design view.
9. make category field a primary key
10. open up relationships window.
11. Add the costcategory and costs tables.
12. create a one-to-many relationship between the category fields and check the boxes for enforce referential integrity, Cascade Update Related Fields and Cascade Delete Updated Records.
13. do the same for bencategory and outputs tables. You may have to change the name of Timber – NC to Timber-NC and Timber – RM to Timber-RM in the BenCategory table.
14. Do the same for the Units and costs and outputs tables...that is create relationships between the units field between the 3 tables.
15. When you are all finished, select **Tool/Database Utilities/Convert Database/To Prior Access Database Version**.
16. When the Convert Database into dialog box opens, provide the name of you new Quick-Silver System Default Database, e.g. QSSystem_1 (do not provide an extension).
17. Close MS Access.
18. Open Windows explorer and change the name of QSSystem_1.mdb to QSSystem_1.QSS.

- F11 New calculation
- F12 Previous calculation

Bug Report Form: Clicking this option brings up a bug report form. Print the form, fill it out and mail or FAX it to the address shown on the form. You could export this form to MS Word (see *Exporting the Report* under *Reporting Options*, page 12), fill it out using MS Word and then email it to the address on the form.

Registration Form: Select **Help/Registration Form** from the main Quick-Silver screen to open up the Registration Form report. Print, fill in and mail or FAX to the address shown on the form. You can also export it to MS Word, fill it in and email it or FAX to the address shown on the form. All Quick-Silver users are encouraged to register so that they can be notified of Quick-Silver upgrades.

Quick-Silver Web Support: This feature is not functional at this time.

Email to HelpDesk: This feature may not work properly if you are a Lotus Notes Users.

Select Reports: Check the boxes corresponding to the desired reports. These reports will be printed automatically. If you do not want to print any reports at this time leave all boxes unchecked.

Running the Batch Processor: When you are finished specifying all of the Batch Processor parameters click the **Go** button to run the batch processor.

Viewing Batch Processor Results: The best way to view the combined results is to open the project file you specified as the output database file. Once it is open you can select **Project/Analysis/Previous Calculation** to open the Quick-Silver Results screen. From the Quick-Silver Results screen menu select **Reports** and then the report that you would like to review or print.

Quick-Silver Help Menu Options

The main Quick-Silver screen Help menu provides 7 options that include the following:

1. Help;
2. Shortcut Keys;
3. Bug Report Form;
4. Registration Form;
5. QS Web Support;
6. Email to HelpDesk; and
7. About.

Help: The Quick-Silver help system is in the process of being revised. The current system provides limited information on how to use or run Quick-Silver. The current system also provides some basic information regarding tools and techniques of forest finance.

Shortcut Keys: These are the function keys across the top of the standard PC keyboard. Each one performs a specific Quick-Silver function. To see what each key does select Help/Shortcut Keys from the Quick-Silver screen menu. The shortcut keys are listed below.

- | | |
|-----|-----------------------|
| F1 | Help |
| F2 | Create new project |
| F3 | Open existing project |
| F4 | Description |
| F5 | Transactions |
| F6 | Log notes |
| F7 | Calculator |
| F8 | Print reports |
| F9 | Price deflator |
| F10 | not used |

Quick-Silver Batch Processor

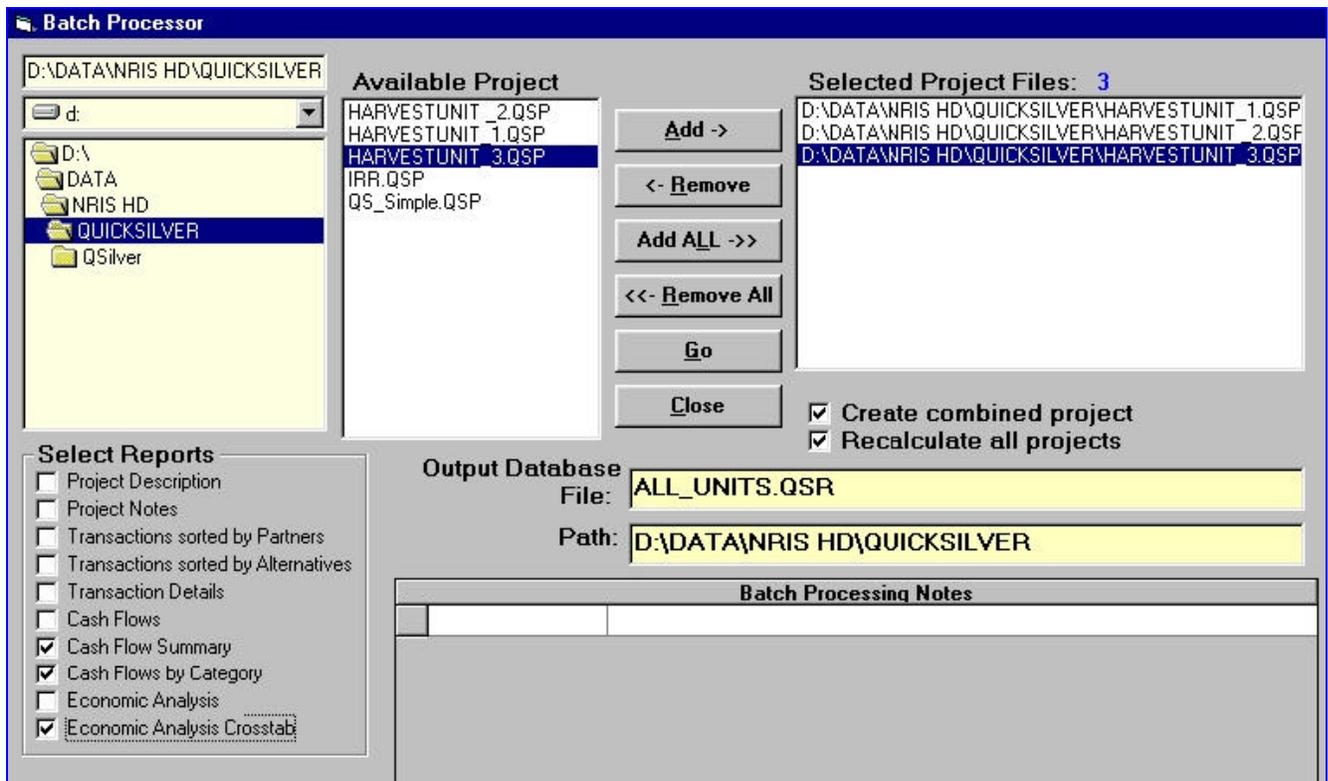
Quick-Silver provides the capability to analyze more than one project together. Select **Tools/ Batch Processor** from the main Quick-Silver screen menu. From the Batch Processor window browse to the correct folder where the project files are stored.

Select Projects for Batch Processor: Select a project from the Available list and click the Add button to add it to the group of projects to process. You can **Add All->>** to add all of the projects in the selected folder.

Created Combined Project: Check this box if you want the results combined into a new project file.

Recalculate All Projects: If each project file has recently be analyzed you do not need to check the box **Recalculate All Projects**. When in doubt check this box. It will never hurt anything to recalculate all of the projects.

Output Database: Specify an output database filename and path. The output database is the name of the new project that will be created if you check the box **Create combined project**. If this box is not checked an output database will not be created.



created. Therefore, you do not have to create the alternatives and partners ahead of importing. The importing will create them for you.

Quick-Silver Tools Menu

A variety of tools are available to help you with your project development and analysis. The Quick-Silver tools include the following:

1. Log Notes;
2. Calculator;
3. Financial Calculator;
4. Price Deflator; and
5. Batch Processor.

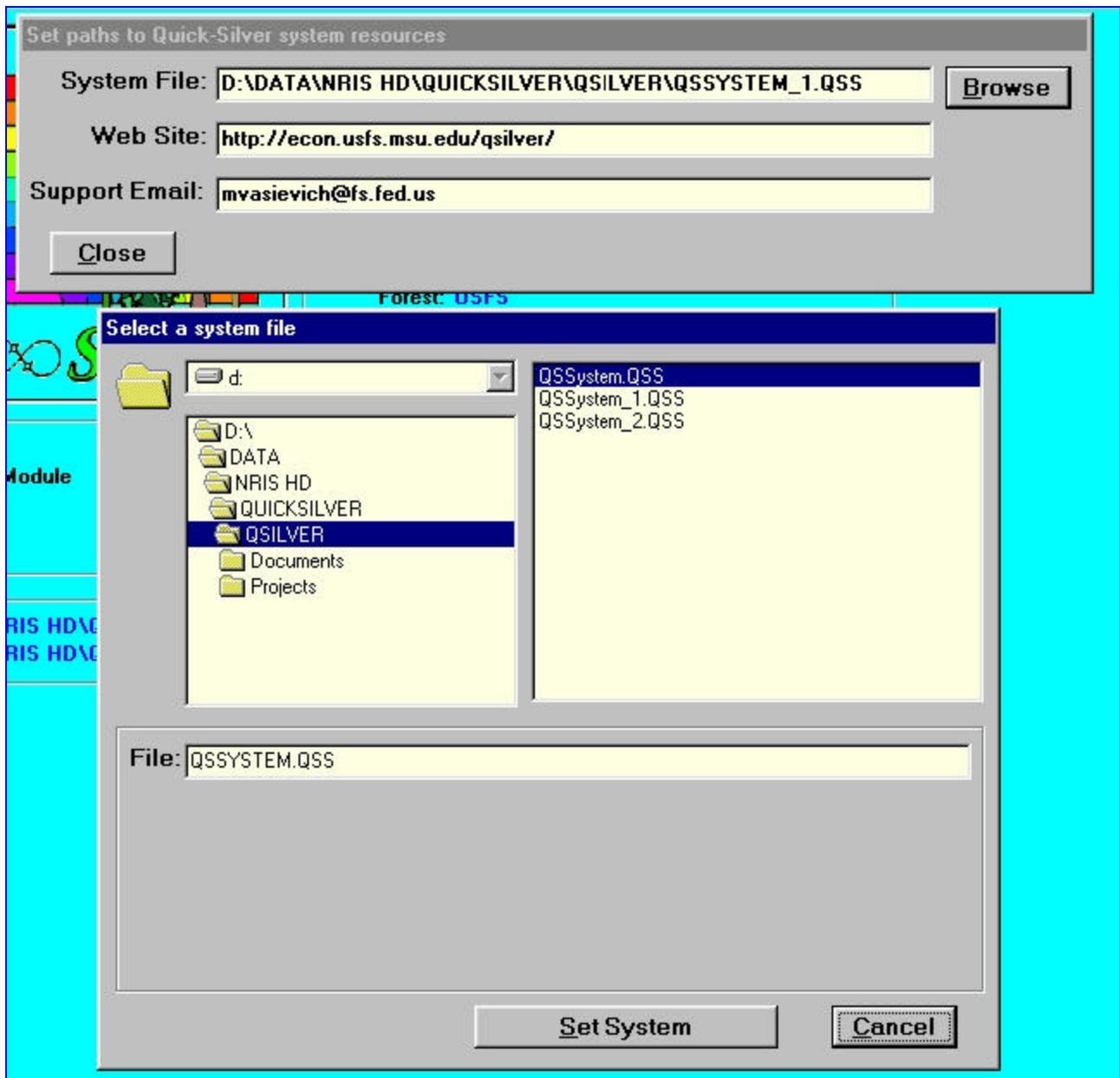
Log Notes: This tool allows the user to look at a summary of Quick-Silver operations that have been performed. You can filter the log by type of message by clicking on the **Message to View** drop down box and selecting a category. The Log Notes tool can be useful while looking for problems.

Calculator: This is a simple calculator that you can use to perform simple arithmetic.

Financial Calculator: This calculator allows you to perform a variety of financial calculations such as present net value, future net value, etc. You must input a present value or a future value, the number of periods and a discount rate.

Price Deflator: This is a handy tool for getting price deflator information. You can select from one of three different types of deflators...consumer price index, gross domestic product, or producer price index. Select a base year as the year that the value was current and view the amount of change since that year. Find the annual inflation between 2 years by entering a beginning and ending year.

Batch Processor: See Quick-Silver Batch Processor below.



Please read **Advanced Default Database Procedures** to enhance the capabilities of Quick-Silver.

Importing Transactions

You can copy transaction information from any existing project for use in the project that is currently open. Select **File/Import Transactions** from the main Quick-Silver screen. Then browse and select the project that you would like to copy transactions from. When you select a project to import transactions from you will be importing all transactions. Importing transactions also results in alternatives and partners for the imported transactions being

Other Quick-Silver Tools and Methods

Creating a Copy of the Default Database

When customizing the default database a user could accidentally delete many of the categories and activities and then later in the process decide that they would really like to have those deleted items back. This problem can be avoided by creating a copy of the default database.

1. Create a new copy of the default, **QSSystem.QSS**, and give it a different name.
2. Be sure to use the QSS extension.
3. Put it in the same folder as **QSSystem.QSS**.
4. Then select **Defaults/Paths** from the main Quick-Silver screen.
5. From the window that pops up click on the **Browse** button.
6. Select the default database file you wish to use (you won't be able to change the drive or folder...the reason for putting it in the same folder as the original QSSystem.QSS file).

You can have multiple default databases. You could have a different default database for each kind of project you develop and analyze, say, a default database for timber sale projects and a different one for Forest Planning purposes.

7. Select your new default database and click the Set System button to accept the change.

Another possible solution for adding detail harvest unit information is to create a new project for each harvest unit. Then when you are finished you would use the **Quick-Silver Batch Processor** (see **Quick-Silver Batch Processor** below for more information) to analyze all these projects together.

Analyzing Benefits and Costs of Roads

If you would like to evaluate the feasibility of a particular road and have the results display that information along with the rest of the project results you could use the methodology described above, **Adding Harvest Unit Transactions**. For every road you want to analyze you would create a new partner. If you do this you will have to make sure that you only allocate benefits and costs to that road that occur because of the road being built.

For example, if you are interested in the benefits and costs of, say, road #1, you can only allocate stumpage benefits that will come from units that are accessed by road #1. The same goes for costs. Allocating costs and benefits correctly will require a little more thought and maybe some creativity in setting up and developing transactions. But, it can be worth it. I know of one individual on a particular Forest that decided to do something similar to this but on a spreadsheet. The result of his analysis showed that the road of interest should not be built. The road was dropped from the project plan because of the results of his analysis.

Analyzing Future Benefits and Costs

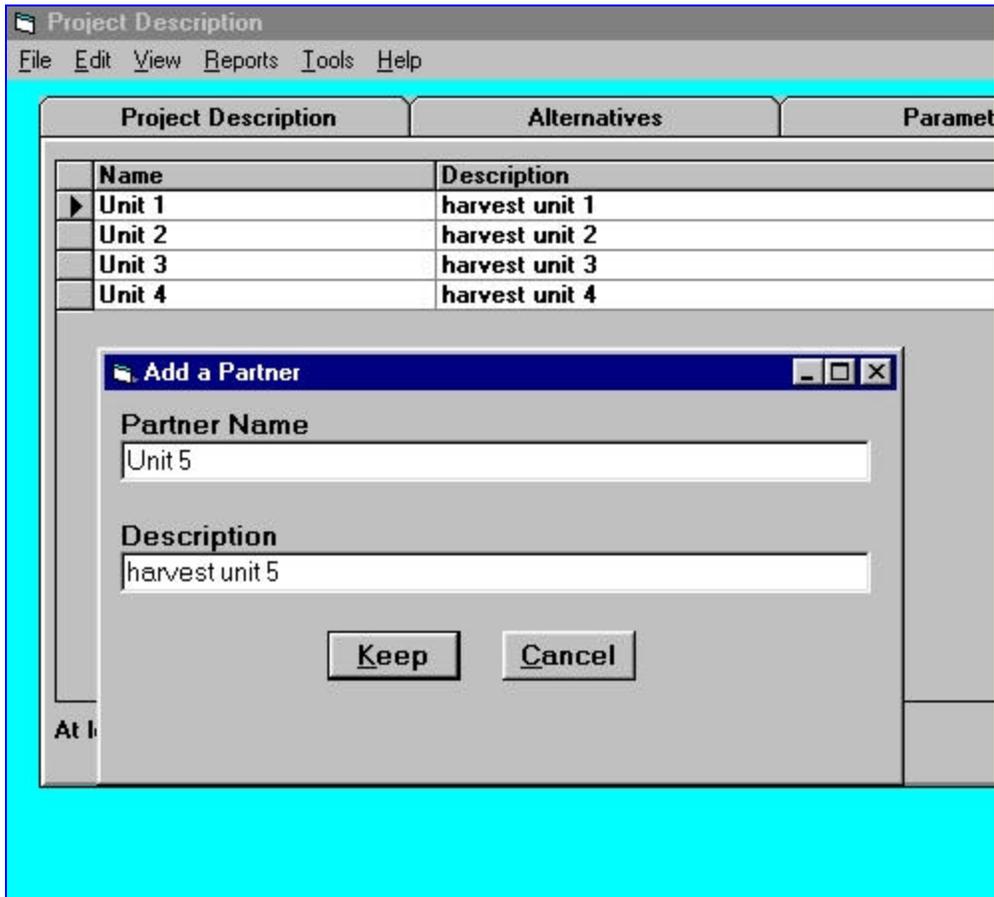
If you are interested in evaluating the benefits and costs that may accrue in the future you could use the methodology described above, **Adding Harvest Unit Transactions** or you could create a new category called **Future**. Let's say you want to evaluate the benefits and costs of a particular road and you use the methodology described above. Then you decide that you would like to see what the future holds for that road. In that case you would have to use the Category field to specify that the transaction belongs to possible future projects and not the current one. Again, creativity and imagination will be useful in developing these kinds of analyses.

Quick-Silver Project Scenarios

The following scenarios have been provided so the new Quick-Silver user can learn some of the different methods for structuring a project. After reviewing the following scenarios the user may think of a different or another possible method for structuring a Quick-Silver project.

Adding Harvest Unit Transactions

Many analysts like to develop detailed benefit and cost transactions by harvest unit. This is especially useful at Gate 1 when evaluating the financial feasibility of each harvest unit or even a particular road, see **Analyzing Benefits and Costs of Roads** below. To do this in Quick-Silver you are going to have to improvise a little. Instead of using investment partners for partner information you will have to use it for harvest unit information. So, for every harvest unit you will need to create a new partner.



When you need to analyze the project you will need reports that group results by partners, e.g. Economic Analysis Cross Tab, Economic Analysis, or Cash Flow Summary reports.

Entering Benefits and Costs Information

If you have finished customizing the default database you are ready to build transactions for your project. This step of the project development is similar to that described above in **The Simple Approach to Using Quick-Silver** except that now you will use the default database to fill in many of the transaction properties.

To use the default database you must make sure the lookup feature is always turned on. Instead of typing in the values for the various transaction data, the information will be supplied by selecting options from dropdown lists. If the lookup feature is turned on, the dropdown list will appear when you click on a transaction field. If you click on the Category field a dropdown list will appear with all of the available categories.

Transaction Properties

From the menu on the main screen select **Project/Transactions**. From the Transactions screen that pops up click on the **Turn on** button. The text next to the button will then read "Lookup is on."

To add a new transaction click on the **Add Cost** button or select **Edit/Add Cost** from the menu to define a cost transaction or **Add Benefit** button or select **Edit/Add Benefit** from the menu to define benefit transaction.

Category: Click on the **Category** field and then select a category from the drop down list that appears.

Name: If you have selected a category you can select an activity or output name by clicking on the Name field and then selecting an activity or output name from the drop down list that appears. If you have not selected a category you will not be able to select a name. Once you select the activity or output name all of the other transaction information is automatically filled in.

Tax: This feature is not operational in this version of Quick-Silver.

Editing Transaction Properties

You can keep the transaction with the default information as it is or you can change it. Although the information was supplied by the default database you do not have to accept it. You can change any value in any enabled field on the transactions screen. You can use the lookup feature to assist in changing values in these fields or you can turn off the lookup feature and type in the field values.

Customizing Default Units

To make a change in the units list select **Defaults** and then **Units/Categories** from the main Quick-Silver screen. The Default Units/Categories screen provides options for adding, deleting and editing units.

Adding/Deleting/Editing Units: To add a unit click the **Add** button on the screen or select **Edit/Add** from the menu. In the window that pops up type the name and description of the new unit and click **Keep**.

To delete a unit, select the category from the list and then click the **Delete** button or **Edit/Delete** from the menu.

To edit a unit, select the unit from the list and then click the **Edit** button or **Edit/Edit** from the menu. In the window that pops up make the change to the unit and click **Keep**.

Note: If you have already built some project transactions and then have made the changes to the list of units you will need to edit the transactions activities associated with the units you have just edited, deleted or added. You may also have to edit the list of default activities and change that unit from the old unit to the new unit for all of the activities that had the old unit name. If you would like these changes to occur automatically for all of the associated activities then see **Advanced Default Database Procedures** below.

Customizing Default Categories

To make a change in the category list select **Defaults** and then **Units/Categories** from the main Quick-Silver screen. When the Default Units/Categories screen loads, select **File** and then either **Benefit Categories** or **Cost Categories** from the menu.

Adding/Deleting/Editing Categories: To add a category click the **Add** button on the screen or select **Edit/Add** from the menu. In the window that pops up type the name of the new category and click **Keep**.

To delete a category, select the category from the list and then click the **Delete** button or **Edit/Delete** from the menu.

To edit a category, select the category from the list and then click the **Edit** button or **Edit/Edit** from the menu. In the window that pops up make the change to the category and click **Keep**.

Note: Once you have made the changes to the list of categories you will need to edit the activities associated with the categories you have just edited, deleted or added. You may also need to edit the default list of activities and change that category name from the old category name to the new one for all of the activities that had the old name. If you have deleted a category name hoping that all of those activities would be deleted...that did not happen. You must go to the default list of activities and delete those activities from there.

If you would like these changes to occur automatically for all of the associated activities then see **Advanced Default Database Procedures** below.

value for Rate and a graph is not automatically drawn check to see that you have a non-zero entry for cost/value.

Notes: Enter any useful note or comment you would like.

Click **Keep** when you are finished editing the cost or benefit.

show as the category. If you were trying to select Equipment you would type an “E” twice to get to the second category that begins with “E.” Click Keep when you are satisfied with the category.

Activity/Benefit: Type in the new name into the Activity/Benefit Field to change the name of the selected activity or output.

Taxation: This feature is not operational in this version of Quick-Silver.

Units: To change units click the drop arrow to open the drop down list of available units and then simply select the desired units from the list. You can not type an entry into this field. If you do not see the units you want you will have to edit the list of default units.

Base Year: This is the year that you want all costs/benefits converted to. If you select the year 2000 all costs will be converted to 2000 dollars. At this time, there is no automated updating. It is merely a label to remind the user. Costs and benefits should be expressed in the same base year for a single project, or projects that will be compared.

Cost/Value: Enter the cost or value per unit for the activity or output.

Rate (%/year): This is the amount of increase/decrease that you believe the real cost/value which change per year after inflation. For example, if inflation was zero, what is the change in the cost or value per unit? Over the last few years the REAL costs of a PC computer has dropped while the REAL costs of oil has increased. As with Discount and Inflation Rates, consult with a Forest or Regional Economist if you are considering something other a default rate of 0%.

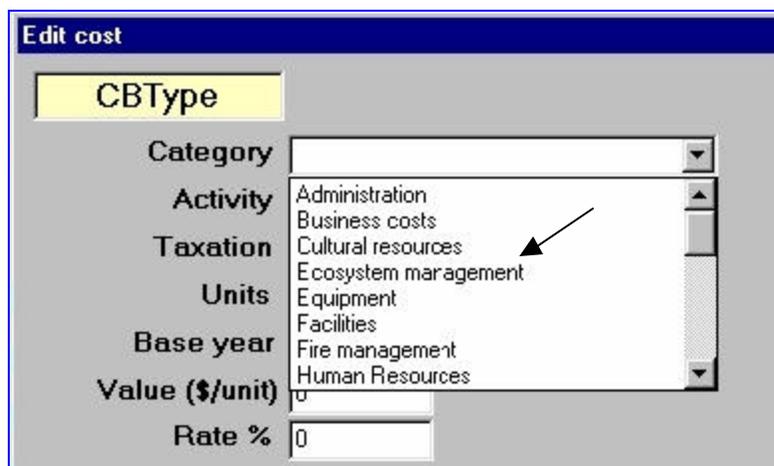
Once you enter a non-zero value for Rate a graph will automatically be drawn showing the change in cost or value in 5 year increments. If you enter a non-zero

“Timber Management” to “Ecosystem Management”, see “**Customizing Default Categories**” below. You can not change the category name from this screen if that category does not already exist.

If you are satisfied with the list of benefits and costs categories you can begin customizing the individual activities or outputs.

Editing Costs and Benefits: To edit or make changes to any of the enabled fields on the **Management Activities and Costs** screen, or the **Benefit and Output Value** screen, find and select the activity or output in the grid and then click the Edit button or select Edit/Edit from the menu. Finding a particular activity or output can be made easier by using the sort and/or filter capabilities. For more information on sorting, filtering, searching, find and replace functions see **Transaction Screen Functions** above. The functionality is the same for all Quick-Silver screens.

Category: First, you should note that if you have changed a category name or have deleted a category using procedures described below in **Customizing Default Categories** you won't see those changes automatically in the list of activities or outputs (see **Note** below). For example, if you changed the cost category of “Timber management” to “Ecosystem management” you will still see “Timber management” as the category. You must select each timber management activity then click the Edit button to change the category name. From the window that pops up you'll see that Category is blank. You will NOT be able to select “Ecosystem Management” from the drop down list.



The screenshot shows a window titled "Edit cost" with a yellow "CBType" button at the top. Below it are several fields: "Category" (a dropdown menu), "Activity" (a list of activities), "Taxation" (a dropdown menu), "Units" (a dropdown menu), "Base year" (a dropdown menu), "Value (\$/unit)" (a text input field), and "Rate %" (a text input field). The "Category" dropdown menu is open, showing a list of categories: Administration, Business costs, Cultural resources, Ecosystem management (highlighted with a blue background and an arrow pointing to it), Equipment, Facilities, Fire management, and Human Resources. The "Value (\$/unit)" field contains "0" and the "Rate %" field contains "0".

For deleted categories you will have to select each activity corresponding to the deleted category and then click the **Delete** button (see **Note** below).

Note: If you would like these changes to occur automatically then see **Advanced Default Database Procedures** below.

While the drop down list is open just type an “E” or click on the Category field twice until it becomes blue and then type an “E”. Then “Ecosystem Management” will

Customizing Default Costs and Benefits

After making changes to the default **Description and System Options** you can begin customizing the list of default benefit and cost activities. The screens for both the default costs and default benefits are similar.

Select **Defaults/** and either **Costs** or **Benefits** from the main Quick-Silver screen to open the **Management Activities and Costs** screen or the **Benefits and Output Values** screen.

Management Activities and Costs

File Edit Search Sort Reports Tools Help

COST Category Administration

Activity Site visits

Units each

Taxation Ordinary expense

Cost (\$/unit) 0

Rate (%/year) 0

Base Year of Value 1998

Notes:
Administration

Category	Name	Units	BaseYear	Value	Rate	Notes
Administration	Site visits	each	1998	\$0.00	0.000	Administration
Administration	Operations/support	days	1998	\$0.00	0.000	Operations
Administration	Public Relations	days	1998	\$0.00	0.000	Administration
Administration	Range permit admin	days	1998	\$0.00	0.000	Administration
Business costs	Cost of goods sold	dollars	1998	\$0.00	0.000	
Business costs	Labor costs	days	1998	\$0.00	0.000	
Equipment	Planting machine/seeder	each	1998	\$0.00	0.000	Capital
Equipment	Truck	each	1998	\$0.00	0.000	Capital
Equipment	Trailer	each	1998	\$0.00	0.000	Capital
Equipment	Trail grooming equipment	each	1998	\$0.00	0.000	Capital

Records: 169

Filter:

Sort: ORDER BY Category

System File: D:\DATA\NRIS HD\QUICKSILVER\QSILVER\QSSSystem.QSS

Buttons: Edit, Add, Filter, Close, Dup, Delete, Show All

The very first thing you should do is to review the list of both the cost and benefit activities to become familiar with the different types of activities, the categories and units of measure for each. You may find that this list contains all of the activities and outputs you desire, but you may not like the associated category name and/or the units. Or, you may find that you need to add some activities or outputs.

If for example you would rather use the category name of “Ecosystem Management” instead of Timber Management you must add the category of “Ecosystem Management” to the default list of categories or change the category name from

Customizing the Default Database

There are five sets of default database information that can be changed before creating transactions. The default information that can be changed includes the following:

1. Description and system options;
2. Costs;
3. Benefits;
4. Units/Categories; and
5. Paths (you will probably never have to change this).

This of course assumes that you have already created your new project file and have supplied the relevant project description information. If you need to review instructions concerning the creation and description of a new project see “Creating a New Project: Simple Approach” above.

Note: One note of caution might be in order here...try to keep in mind that anything you delete from the default database will have to be added back if you ever want it for other projects. Even though you may not need any of the Wildlife categories and the associated Wildlife activities for the current project you may need them in the future for other projects. You could get around this by creating another default database, see **Creating Another Default Database** below.

Description and System Options

Select **Defaults/ Description and system options** from the main Quick-Silver screen. From the Description and System Options screen you can select the **Parameters** tab to make changes in Discount Rate, Inflation Rate, Start Year of Project, Beginning and Ending Year for Discount Options, System Options and Computation Parameters. By selecting the **Identifiers** tab you can make changes to Header information, Analyst, Forest/District, and Primary/Investor.

Discount and Inflation Rates: For most USFS projects use a discount rate of 4 percent and an inflation rate of zero should be used for most USFS projects. If you wish to explore alternative rates, please consult with a Forest or Regional economist.

If you think inflation can change the outcome of your analysis results significantly perform a quick sensitivity analysis using different rates.

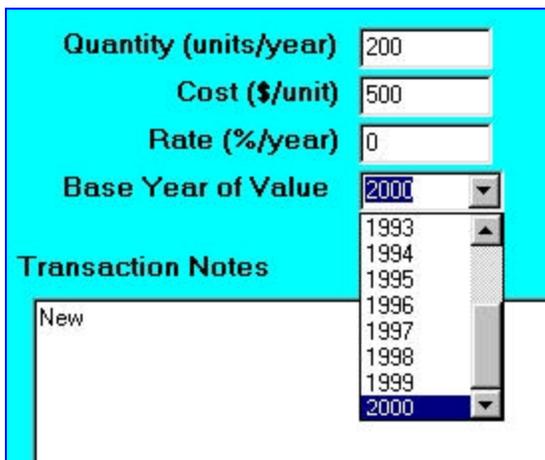
Computation Parameters: Discount Rate Summary Limit is the last rate that a PNV is calculated for. The **Discount Rate Summary Step** is the increment the rate is increased throughout the range. These are useful parameters to be able to change for performing discount rate sensitivity analyses.

Standard Approach to Using Quick-Silver: Using the Default Database

The methodology described below explains how to use Quick-Silver with the default database. If you are a new Quick-Silver user you are encouraged to study the **Simple Approach**, described above, before trying to learn the **Standard Approach**.

Overview of Default Database

Many database applications often provide lookup tables. A lookup table is a table that contains one or more choices to pick from when entering information into a field on a form, screen or table. For example, if you are entering “Year” information you often can select a particular year from a drop down list. The information in the drop down list is provide by a lookup table.



The screenshot shows a form with the following fields:

- Quantity (units/year): 200
- Cost (\$/unit): 500
- Rate (%/year): 0
- Base Year of Value: 2000 (dropdown menu showing years from 1993 to 2000)
- Transaction Notes: New

Quick-Silver contains lookup tables for many of the fields appearing on the Transactions screen. These lookup tables are stored in the Default Database (QSSystem.QSS). The most useful feature of the Default Database is that the user can edit these lookup tables to fit their own needs.

When you install Quick-Silver the Default Database contains an initial set of cost and benefit activities that are organized by category. The user should review and make necessary changes to this initial set of information before proceeding with development of project transactions. The transaction information that the user can change includes the category and activity names, units, value, real rate of value change, and the year that the value was current.

When you are satisfied with the changes you have made to the Default Database you can begin creating transactions by first selecting a category and activity from a dropdown list on the Transactions Edit screen. Values stored in the data base are then retrieved for that transaction.

Composite Rate of Return: The composite rate of return is similar to the internal rate of return, but has one important difference. This rate of return assumes that early revenues are reinvested at the discount rate, rather than the internal rate of the forestry investment. The composite rate of return is also called the reinvestment rate adjusted rate of return.

Internal Rate of Return: The internal rate of return is perhaps the most revealing of all investment criteria. Internal rate of return indicates how fast profits are accrued on invested capital. It also assumes that all intermediate revenues are reinvested in a similar investment. Internal rate of return is often used to compare forestry with other investment options. Although it is useful for such comparisons, internal rate of return is sometimes misleading and should be used with caution.

Values for the IRR will be show as NA when calculation produces a result of less than or equal to zero.

Investment Length (years): The number of years from the beginning of the investment period to the year when the last cost or benefit occurs.

Net Annual Equivalent (\$): It is sometimes desirable to have a measure of annual profit from an investment. The present net value can be converted to a yearly amount using annuity formulas. Annual equivalent value is useful for comparing timber investments with other options that pay an annual return such as agricultural crops. It is also sometimes used to compare investments with different lengths.

PV-Benefits (\$): The sum of the discounted benefits.

PV-Costs (\$): The sum of the discounted costs.

This concludes the section describing the simple approach and the minimum steps necessary to take to develop and analyze a Quick-Silver project. All of the project information you have entered is contained in your project file. The project file has the name you gave it during the project description step and has extension of qsp. None of the information supplied in the simple approach has been saved in the system file, QSSilver.qss. In the next section steps will be described regarding the use of the Default Database.

Analyzing a Project

After you have defined all of your transactions for the project the next step is to run the analysis and produce a report.

Select **Project/Analysis** and pick **New Calculation** from the main screen menu. The results screen that appears shows nine different calculations, by partner and alternative, for your project. The first section is a summary of all partners followed by calculations by partner. If you only had one partner, say, USFS, then the first and second sections are identical.

When you change focus to another screen or another application the calculation screen showing the results will unload. On most of the other Quick-Silver screens you have the option of clicking a **Close** button. To close this screen you can select **File/Close** from the menu or just click the close box in the upper right. When you want to go back and look at the results again you can select **Project/Analysis** and pick **Previous Calculation** from the main screen menu. However, if you make any changes to the transactions you must produce a **New Calculation**.

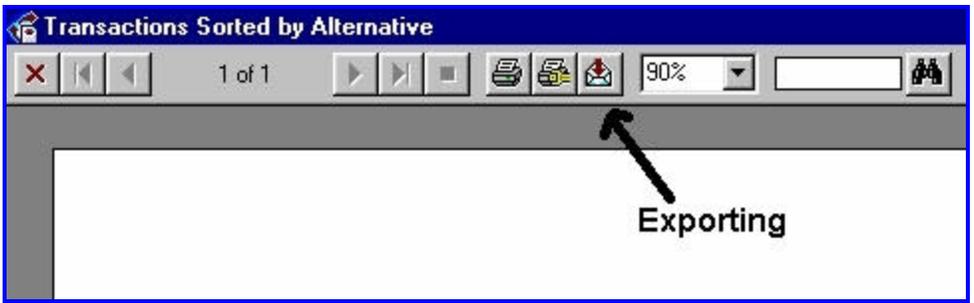
Present Net Value (\$): This measure is the difference between discounted revenues and discounted costs. The present net value calculation is the most reliable of all investment performance criteria. When using PNV to evaluate independent projects the selection criterion is to select all projects with a PNV equal to or greater than zero. For mutually exclusive alternatives the selection criterion is to select the alternative with the greatest PNV. It is sometimes called present net worth.

B/C Ratio: The benefit/cost ratio equals the sum of the discounted benefits divided by the sum of the discounted costs. The project can be accepted as economically feasible as long as the ratio is equal to 1 or greater. The ratio can be used to note how much costs could rise without making the project economically unattractive. For example, if the b/c ratio was 1.48 then the cost could rise 48 percent before the ratio would be driven down to 1.0. You could just as well take the reciprocal and subtract it from 1 to determine how much benefits would have to fall for the ratio to be driven to 1.0, i.e. 32 percent.

The use of a benefit-cost ratio can lead to erroneous results when you are comparing mutually exclusive alternatives. In this case it's best to use the Net Present Value.

When budget constraints exist the b/c ratio is excellent for ranking projects. Projects would be ranked and those with the highest ratios would be accepted and projects would be implemented until the budget is exhausted. The benefit/cost ratio is not foolproof, but is a rough guide to desirability.

Cash Flows: This is just the sum of all transactions that have been defined, including those defined by annuities, annual and periodic.



Filter: When you want to view a subset of transaction records you can click the **Filter** button or selecting **Sort/Filter Records** from the menu bar and then specify the parameters to filter on. A popup window appears asking you which field and what search criteria to apply to that field. First, select the field you want. Second, type in the text that you want to filter on. This feature automatically places a wildcard character in front and in back of the text you type. When you want to undo the filter select **Sort/Show All Records** from the menu bar or the **Show All** button.

Sorting Records You can sort transaction records for the table or form view by selecting Sort from the menu bar. After selecting **Sort**, there are several options to sort by.

Reporting Options

Two simple reports will be described here, Transactions Sorted by Alternative and Transaction Details.

Transactions Sorted by Alternative Report: This report displays all transactions and groups them by alternative and then by transaction type (benefit or cost). To view all defined transactions by alternative select Reports/Transactions Sorted by Alternative from the menu bar.

Transaction Details Report: This report groups transactions by partner, alternative and then by transaction type (benefit or cost). Select **Reports/Transaction Details** from the menu bar to view this report.

Report Screen Tool Bar The tool bar at the top of every report screen provides options (in order of appearance) for navigating between pages of the report, stopping the report preview, printing, printer setup, exporting the report to various file formats, viewing size, and searching.

Exporting the Report: If you want to export the report to another file format click on the envelope icon located on the tool bar at the top of the report. From the popup window, select the file format and the destination for you export. For example, to export the report to MS Word you would select Rich Text Format as the format and Application as the destination. Then click OK. MS Word will then open with the report. You can then Select File/Save As from the MS Word menu and select MS Word as the document type.

To export to MS Excel select either of the Excel formats and application as the destination.

Transaction Screen Functions

Turn on/off Lookup: Selecting **Edit/Lookup Feature** from the menu bar or Clicking the **Turn On/Off** button will enable the use of the lookup tables that reside within the default database. The use of the default database will be described later in this documentation. It is not necessary to use the default database or the lookup tables to complete a project analysis. As you gain more experience you'll understand how using the default database will make project development easier. Leave the lookup turned off for now.

Goto Form/Table View: When you are entering specific cost or benefit information you are in form view. If you want to look at all of your transactions at once select **View/Table View** from the menu bar or click on the **Goto Table View** button. You can not directly edit transaction data while you are in table view.

Transaction Record Navigation Navigate between transaction records by clicking the **First, Last, Previous or Next** buttons or by selecting **Edit/First Record, Last Record, Previous Record or Next Record** from the menu bar.

Selecting transaction records: To select a particular record you must put your cursor on the far left side of the table, in the gray area left of the left most field, and click. You can select one or more records while in table view in just the same way that you select other objects in other windows applications. To select all records, go to the first record, select it, then go to the last record, hold down the shift key and select it. You can also select all records by selecting **Edit/Select All** from the menu bar. To select multiple non-adjacent records you hold down the ctrl key and select records individually.

You can also select particular records by using the **Search/Find, Find Next or Find All** feature on the menu bar.

Find and Replace: To search for a particular string of text in a particular field select **Edit/Find** from the menu bar. Specify the field you want to search in, your search criteria and then the replacement string. Click **Find**. Select **Edit/Replace** from the menu and then click **replace** to complete the find and replace operation.

Duplicate: To duplicate a transaction record or multiple transaction records you first select the records you want and then click the **Duplicate** button select **Edit/Duplicate Records** from the menu bar. A popup window appears asking you which alternative and partner you want the duplicate records to apply to. This feature is especially useful for developing other alternatives. In many situations other alternatives may vary only slightly. You could copy all of the transactions for one alternative to another and then edit where necessary.

Delete: Delete a transaction record by selecting it first and clicking the **Delete** button or selecting **Edit/Delete Records** from the menu bar.

Cost (\$/unit): Enter the cost per unit of measure for the activity or output.

Rate (%/year): This is the amount of increase/decrease that you believe the real cost which change per year after inflation. For example, if inflation was zero, what is the change in the cost per unit? Over the last few years the REAL costs of a PC computer has dropped while the REAL costs of oil has increased. As with Discount and Inflation Rates, consult with a Forest or Regional Economist if you are considering something other a default rate of 0%.

Base Year of Value: This is the year that you want all costs converted to. If you select the year 2000 all costs will be converted to 2000 dollars. At this time, there is no automated updating. It is merely a label to remind the user. Costs and benefits should be expressed in the same base year for a single project, or projects that will be compared.

Alternative: Clicking this field will open a popup window where you can select the alternative for this treatment activity or output.

Partner: Clicking this field will open a popup window where you can select the appropriate partner for the treatment activity. For example, if the project alternative includes a wildlife burn treatment and it's being paid for by some non-profit wildlife group you would select them as the partner. If the costs is being split 50-50 between two partners you will need to develop two transactions, one for each partner.

Schedule Frequency: Select how the treatment activity or output will occur. A transaction that occurs once, timber sale preparation, would get "one time." An annually occurring road maintenance cost would get "annual." If the road maintenance cost occurs on a regular, but not annual, schedule you would select "periodic."

First, Last and Step Year: For annual and periodic transactions you need to define which year the transaction starts and the last year the event occurs. You can use the drop down feature and select the year or you can just type it in. For example, if road maintenance is going to occur for 14 years you will need to type it in because you can not select 14 from the drop down list. If the transaction is periodic you need to select the length in years between transaction occurrences. Road maintenance that occurs every other year would get a step year of 2.

Transaction Edit
 File Edit View Search Sort Reports Tools Help

COST File: **QS_SIMPLE.QSP** Lookup is Off Turn On

Transactions							
CBT type	Name	Category	Alternative	Partner	Qty	Units	Value
▶ COST	Required Reforestati	timber sale	Alt One	USFS	200	acres	\$500.00
COST	Mitigation KV	timber sale	Alt One	USFS	1	total	\$20,000.00
COST	Road Reconstruction	Roads	Alt One	USFS	5	miles	\$3,000.00
COST	Road Maint	Roads	Alt One	USFS	20	miles	\$500.00
COST	log haul	timber sale	Alt One	USFS	10000	ccf	\$50.00
COST	brush disp	timber sale	Alt One	USFS	1000	acres	\$50.00
COST	Harv Admin	timber sale	Alt One	USFS	10000	ccf	\$10.00
COST	Sale Prep	timber sale	Alt One	USFS	10000	ccf	\$10.00
BENEFIT	Stumpage	timber sale	Alt One	USFS	10000	ccf	\$300.00
COST	Required Reforestati	timber sale	Alt Two	USFS	500	acres	\$200.00
COST	Mitigation KV	timber sale	Alt Two	USFS	1	total	\$2,000.00
COST	Road Reconstruction	Roads	Alt Two	USFS	5	miles	\$8,000.00
COST	Road Maint	Roads	Alt Two	USFS	30	miles	\$500.00
COST	log haul	timber sale	Alt Two	USFS	9000	ccf	\$50.00
COST	brush disp	timber sale	Alt Two	USFS	200	acres	\$50.00
COST	Harv Admin	timber sale	Alt Two	USFS	9000	ccf	\$10.00
COST	Sale Prep	timber sale	Alt Two	USFS	9000	ccf	\$10.00
BENEFIT	Stumpage	timber sale	Alt Two	USFS	9000	ccf	\$300.00
COST	Road Construction	timber sale	Alt One	USFS	10	miles	\$21,000.00

Transaction: 1 of 19
 Sort:
 Filter:

Start year of project: 2000
 First activity: 0 - 2000
 Last activity: 19 - 2019

Buttons: Goto Form View, First, Last, Previous, Next, Duplicate, Delete, Add Cost, Add Benefit, Filter, Show All, Close

Category: You can classify each cost and benefit by a particular category. Road building activities could be described as “Road Building.” A required mitigation activity could be defined as “Required Mitigation.” If an activity is related to improving wildlife habitat you could call it “Wildlife.” There is no strict scheme to follow. Choose categories that make sense to you and that will be useful for reviewing and analyzing the results. You could just lump every activity into a category called “Project.”

Name: Enter a short descriptive name for this transaction, e.g. “Harv Admin.”

Tax: When developing a project without the use of the default database the Tax field will always show a value of “NA.”

Units: Enter the unit of measure for the activity or output, e.g. ccf, miles, feet, or total. You would use a unit of measure of “total” if for example you were entering a cost as one lump sum for all the units. You may not care that you’re building 29 miles of fence. All you may care about is that all of your fence building will cost X amount of dollars.

Quantity (units/year): Enter the amount of the activity or output.

Transaction Edit
 File Edit View Search Sort Reports Tools Help

COST File: QS_SIMPLE.QSP Lookup is Off Turn On

Category: Alternative:
 Name: Partner:
 Tax: Last Update:
 Units:

Quantity (units/year): Frequency:
 Cost (\$/unit): First Year: 2000
 Rate (%/year): Last Year:
 Base Year of Value: Step Year:

Transaction Notes

Transaction: 20 of 20 Start year of project: 2000
 Sort: First activity: 0 - 2000
 Filter: Last activity: 19 - 2019

Goto Table View
 First
 Last
 Previous
 Next
 Duplicate
 Delete
 Add Cost
 Add Benefit
 Filter
 Show All
 Close

Clicking **Show All** will produce a grid with all transactions that have created for the project.

Partners: Click on the Investment Partners tab. The same process for adding, editing, and deleting alternatives applies to the partner records as well. Projects may have multiple investment participants. In some cases, these may represent a collection of partners. Partners may also be defined for costs or benefits that accrue to someone other than the primary investor.

Click the **Close** button when you finished describing your project.

Entering Benefits and Costs Information

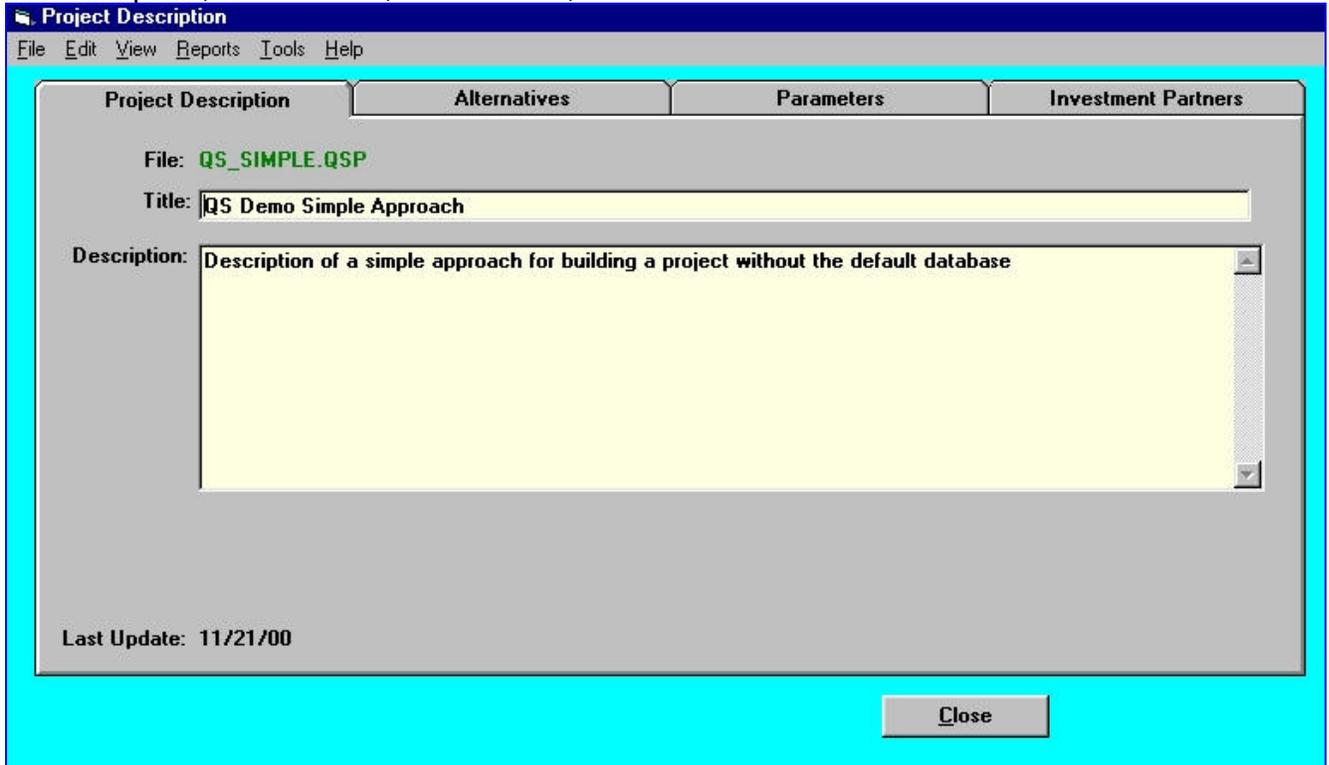
Each alternative described above consists of a variety of benefits and costs that occur as a direct result of implementing the project activities. For example, if you're analyzing a commercial timber sale there will be costs associated with harvest administration and sale preparation activities. There will be benefits associated with the activity of harvesting the stumpage. You must enter all the various benefits and costs for each alternative described above. For each benefit and cost you must define a transaction.

Transaction Properties

From the menu on the main screen select **Project/Transactions**. From the Transactions screen that pops up click on the **Add Cost** button or select **Edit/Add Cost** from the menu to define a cost transaction or **Add Benefit** button or select **Edit/Add Benefit** from the menu to define benefit transaction. Enter the appropriate information for each field on the screen that is enabled...not grayed out.

Describing the Project

Select **Project/Description** from the menu bar. The project description screen provides four aspects of the project that need to be defined. These include Project Description, Alternatives, Parameters, and Investment Partners.



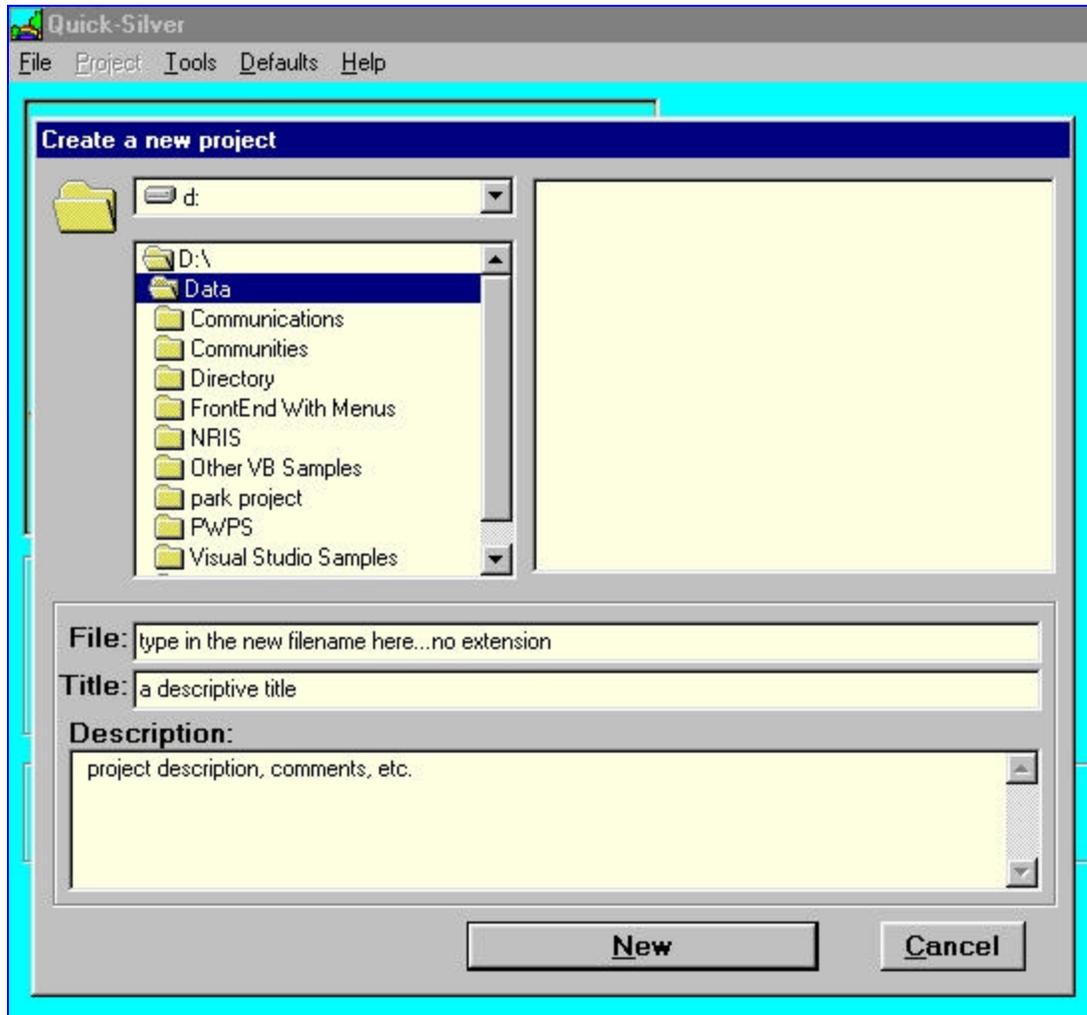
Project Description: This information was entered when you created your new project. To edit this information select the **Project Description** tab and edit either the project title or the project description information.

Alternatives: Click on the Alternatives tab. The default alternative of "Control" may be edited by clicking in the name field and typing. The same is true for the alternative description field. "Alt 1" and "No Action" are often used to replace the default labels. Additional alternatives may be added by clicking on the appropriate button and typing in the fields. Alternatives may be deleted by first selecting the desired alternative, then clicking the "Delete" button. Alternative records are selected by moving the mouse cursor into the gray, left-hand column of the screen until the cursor becomes a right-pointed arrow, then clicking.

Parameters: Click on the Parameters tab. Enter the analyst name, Forest/District Name, Project Start Year, Discount Rate, and Inflation Rate. For most Forest Service projects, select 4% as the Discount Rate and 0% as the inflation Rate. If you wish to explore alternative rates, please consult with a Forest or Regional economist.

Creating a New Project Without the Default Database

The first thing you must do is to create a new project. From the main screen, select **File/New Project**. In the window that comes up, select the drive and folder where you want the new project file to be created and saved. Type the File name (do not include an extension), a project title, and a description of what your project is all about in the appropriate boxes. A list of exiting projects in the folder is provided so the user will not provide a new project file name that duplicates existing file names. Click the **New** button.



After clicking **New** your project status and some path information will appear. You can change the status information in the next step where you describe the project in more detail.

The Simple Approach to Using Quick-Silver

If you have not used Quick-Silver before the simplest approach for building and analyzing a new project would be to use Quick-Silver without the default database. The following instructions explain how to create a new project and perform an analysis with a minimal amount of effort.

Overview of Minimum Steps to Create and Analyze Project

The minimum steps to take to create, analyze, and interpret a project without using the default database include the following:

1. Provide project description information
2. Defining project transactions, i.e., benefits and costs
3. Building, viewing and exporting transactions reports (optional)
4. Analyzing the project
5. Interpreting results of the project analysis

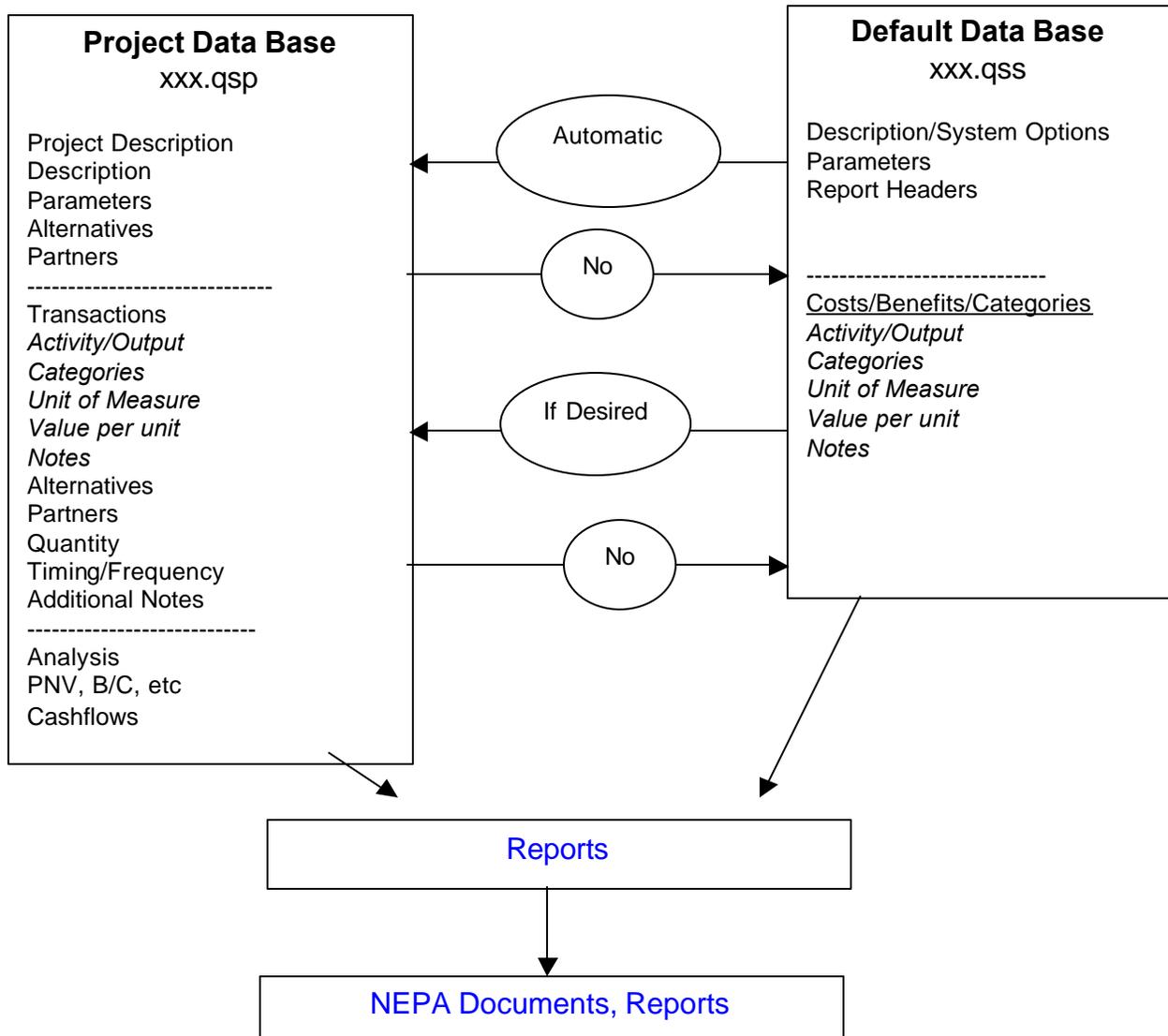
Overview of Project Results

After completing the steps described below you will be able to produce a simple project report showing some of the project evaluation criteria by alternative and by partner.

Table 1. Economic Analysis CrossTab Report for Simple QS_Simple.QSP

<i>Quick-Silver Investment Analysis</i>			<i>Economic Returns Crosstab Report</i>	
Forest:	USFS			USDA Forest Service
Analyst:	QS User			NRIS-Human Dimensions Module
File:	QS_SIMPLE.QSP			East Lansing, MI
All Partners			Discount Rate %: 4.0000	
	<u>Alt One</u>	<u>Alt Two</u>		
B/C Ratio	2.28	2.57		
Cash Flows (number)	28	27		
Composite Rate of Return (percent)	8.62	9.30		
Internal Rate of Return (percent)	72.63	109.40		
Investment Length (years)	19	19		
Net Annual Equivalent (\$)	\$114,172.37	\$111,662.82		
Present Net Value (\$)	\$1,499,533.00	\$1,466,572.77		
PV-Benefits (\$)	\$2,666,989.08	\$2,400,290.17		
PV-Costs (\$)	-\$1,167,456.08	-\$933,717.40		
USFS			Discount Rate %: 4.0000	
	<u>Alt One</u>	<u>Alt Two</u>		
B/C Ratio	2.28	2.57		
Cash Flows (number)	28	27		
Composite Rate of Return (percent)	8.62	9.30		
Internal Rate of Return (percent)	72.63	109.40		
Investment Length (years)	19	19		
Net Annual Equivalent (\$)	\$114,172.37	\$111,662.82		
Present Net Value (\$)	\$1,499,533.00	\$1,466,572.77		
PV-Benefits (\$)	\$2,666,989.08	\$2,400,290.17		
PV-Costs (\$)	-\$1,167,456.08	-\$933,717.40		

Figure 1. Overview of Quick-Silver



establishing a description, building transactions, and running the analysis. Reports may be generated to display data or analysis results.

System File (default database) The second database file, with the extension .qss (Quick-Silver System), is the system or default database. It is a repository of data that may be called for repeatedly in projects. The user can call for default database records, if desired – or leave them out entirely. The default database also provides default analysis parameters and report headers for projects. Reports may be generated to display contents of the default database. Figure 1 provides a sketch of how these two database files are related.

Results File A third database file, with the extension .qsr (Quick-Silver Run), is a combination of projects. This file is generated by using the batch processor and provides combined analysis results of multiple projects.

Because project files are fully self-contained, they may be shared among Quick-Silver users – regardless of the default database or system files. Project and system files may be copied and renamed, as long as the extension is not changed.

What is Quick-Silver?

Brief Description

Quick-Silver is a fast, flexible program for financial and economic analysis of resource management and capital investment projects. It provides a convenient and consistent way to figure the dollars and cents criteria needed to determine if one management action costs less or has a better payoff than another. Quick-Silver helps standardize economic analysis methods through sharing of project files and a comprehensive set of user-defined management activities so that the same costs and benefits can be used for similar projects.

While Quick-Silver doesn't project the consequences of management -- timber yields or other forest outputs -- users have plenty of flexibility to build project alternatives by including costs, revenues, and non-market benefits that occur now and are expected in the future. Once all the project alternatives and their costs, revenues, and benefits are defined, Quick-Silver takes over to calculate a variety of financial and economic measures, such as:

- Present Net Value (PNV)
- Benefit/Cost Ratio (B/C)
- Net Annual Equivalent (NAE)
- Internal Rate of Return (IRR)
- Annual Cash flows

Reports are available that may be exported into MS Office format, ready for inclusion in NEPA documents, administrative reports, or publications.

Since 1984, Quick-Silver has been used by private industry, consulting foresters, and government agencies to analyzed projects and programs.

Computer system requirements

Quick-Silver version 5.004 runs on IBM-PC compatible computers using MS-Windows 95/98/NT. A Pentium processor and 32 MB of RAM are recommended. Hard drive space requirements vary. The downloaded version of Quick-Silver requires about 13 MB of space. Once installed, the program requires about 3.5 MB of hard drive space; project files typically range in size from 100KB to 500KB.

How Quick-Silver Works

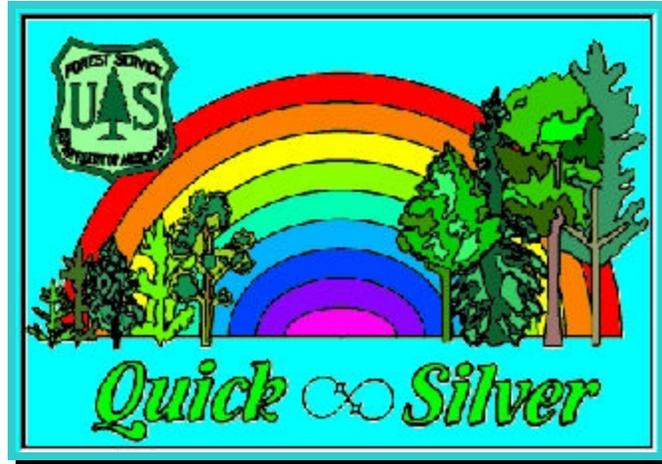
The Quick-Silver program is essentially a database application. The databases and other files are accessed through Quick-Silver's user interface. The format for all of Quick-Silver databases is MS Access 97.

Project File The first database file, with the extension .qsp (Quick-Silver Project), is the project database. It is a fully self-contained file (an MS Access 97 file) that includes all data and results necessary for project analysis. This file is created by

Table of Contents

What is Quick-Silver?	3
Brief Description.....	3
Computer system requirements.....	3
How Quick-Silver Works	3
The Simple Approach to Using Quick-Silver	6
Overview of Minimum Steps to Create and Analyze Project	6
Overview of Project Results	6
Creating a New Project Without the Default Database.....	7
<i>Describing the Project</i>	8
<i>Entering Benefits and Costs Information</i>	9
<i>Transaction Properties</i>	9
<i>Transaction Screen Functions</i>	13
<i>Reporting Options</i>	14
<i>Analyzing a Project</i>	16
Standard Approach to Using Quick-Silver: Using the Default Database ...	18
Overview of Default Database	18
Customizing the Default Database.....	19
<i>Description and System Options</i>	19
<i>Customizing Default Costs and Benefits</i>	20
<i>Customizing Default Categories</i>	24
<i>Customizing Default Units</i>	25
Entering Benefits and Costs Information.....	26
<i>Transaction Properties</i>	26
<i>Editing Transaction Properties</i>	26
Quick-Silver Project Scenarios	27
Adding Harvest Unit Transactions	27
Analyzing Benefits and Costs of Roads	28
Analyzing Future Benefits and Costs.....	28
Other Quick-Silver Tools and Methods	29
Creating a Copy of the Default Database	29
Importing Transactions.....	30
Quick-Silver Tools Menu.....	31
Quick-Silver Batch Processor	32
Quick-Silver Help Menu Options	33
Advanced Default Database Procedures	35
Creating Relationships In Default Database.....	35
Contacts	36

Quick-Silver User Guide – Draft



By

Mike Vasievich, Natural Resource Information System
Mike Retzlaff, Economist, Region 2
Doug Smith, Analyst/Economist, Colville NF
USDA Forest Service

December 1, 2000