MATERIAL TACKING TOOL USER MANUAL

RECYCLED MATERIALS RESOURCE CENTER

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I. INTRODUCTION

A. PURPOSE OF THE MATERIAL TRACKING TOOL

The Recycled Materials Resource Center (RMRC) and various governmental agencies have developed fact sheets on recycled materials and industrial byproducts for their use in highway construction applications. These fact sheets typically have addressed the engineering properties and environmental suitability issues relevant to various applications and in some cases incorporated design guidelines and construction specifications. What is lacking is direct information on sustainability assessment characteristics, i.e., greenhouse emissions, energy and water consumption and life cycle cost benefits. Agencies may track system-wide use of quantities for major recycled materials such as fly ash in concrete, recycled asphalt pavement (RAP), recycled concrete aggregate (RCA), etc., but they can not readily calculate the benefits accrued by substitution of these materials for conventional materials. Although state transportation departments have been in the forefront of introducing recycled materials, they have not been able to clearly convey the benefits in a quantitative and transparent manner using easily understood metrics.

The objective of this Tracking Tool is to provide a means by which the state system-wide material use quantities can be accurately reported and used to calculate the life cycle benefits associated with the incorporation of recycled materials and industrial byproducts to highway pavement construction.

B. ABOUT THE RMRC

The RMRC has four basic missions:

1. To systematically test, evaluate, develop appropriate guidelines for and demonstrate environmentally acceptable increased use of recycled materials in transportation infrastructure construction and maintenance.
2. To make information available to State transportation departments, the Federal Highway Administration, the construction industry, and other interested parties.
3. To encourage the increased use of recycled materials by using sound science to analyze potential long-term considerations that affect the physical and environmental performance.
4. To work cooperatively with Federal and State officials to reduce the institutional barriers that limit widespread use recycled materials and to ensure that such increased use is consistent with the sustained environmental and physical integrity. The Center has a special interest in the long-term physical and environmental consequences of recycled material use.

II. GETTING STARTED

A. SETUP/INSTALLATION

The Tracking Tool can be found and downloaded on the RMRC website (rmrc.wisc.edu).

The Tracking Tool was creating using Microsoft Office Excel 2007 (v12.0) and can be used with Excel 2007, 2010, and 2013. The Tracking Tool has not yet been tested on Mac versions of Excel and it is not recommended to run the Tracking Tool on these versions of Excel.

1. BEFORE ENTERING DATA

After opening the Tracking Tool on a compatible version of Excel and before clicking the "Start" button on the **Projects Sheet**,

1. Enable all macros. When the Tracking Tool is first opened, the yellow message bar appears with a shield icon and the Enable Content button. Click the Enable Content button to enable macros.
2. Ensure missing references are resolved. (For all versions of Excel except 2007, and for Windows versions 8 and 10)
    a. Open the VBE Editor by pressing the Alt and F11 buttons at the same time.
    b. Open the "Tools" menu and select "References…"
    c. In the Available References list check if there is a "MISSING…" entry, this should appear near the top of the list. If there is, make sure the box is unchecked. Click OK. If the "MISSING…" entry is not there, click OK to continue.

B. USER ACCESS

A user has the ability to:

1. Add new projects to the project list and create **Individual Project Sheets**.
2. Add material quantities **Individual Project Sheets** and the **State Wide Totals Sheet**.
3. Delete entire projects or individual datum from a project sheet and the state wide totals sheet.
4. Add or delete bid items.

A user does not have the ability to:

1. Add to or delete from the listed recycled materials.
2. Change the units of measurement.
3. Change the interface of the Tracking Tool. All sheets are protected. Any cell where the user does not enter data cannot be modified. These cells are "Read-Only". If a "Read-Only" cell is double clicked, an Excel warning message will pop-up and the "OK" button may be clicked to continue.

III. TOOL OVERVIEW

The following sections describe each component of the Tracking Tool.

A. PROJECTS SHEET

The **Projects Sheet** contains a table of created projects in the Excel file; the table is automatically filled out when the user enters a new project. The *Projects Table* includes columns for,

1. The date the project was created.
2. The project number/ID.
3. The county/counties in which the project takes place.
4. The road number on which the project is taking place.
5. A brief description of the project.

The **Projects Sheet** also contains the "Start" button, which brings up the *Start Menu* and allows the user to start entering data.

The **Projects Sheet** cannot be deleted manually or through the "Delete Project or Data" button in the **Materials Sheet**.

1. START MENU

The *Start Menu* allows the user to choose an old project to add data to or add a new project to the Projects sheet. An image of the *Start Menu* can be seen in Figure 3.1.

The buttons included in the Start Menu are:

- Choose Date
- Add New Project
- OK
- Cancel
- The "X" button is disabled
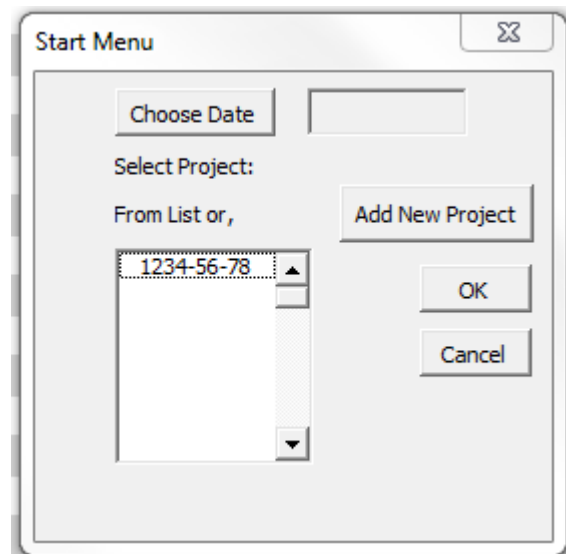
FIGURE 3:1 START MENU

The *Start Menu* also includes a list box from which the user can select an existing project to add data to.

A) CHOOSE DATE

The "Choose Date" button brings up a *Calendar* window, from which the user can select the date they are entering data. The date is automatically selected as "Today's Date" but can be changed. Once the user has selected a date, the "Okay" button can be clicked to close the Calendar window and the date is automatically entered in the text box to the right of the "Choose Date" button.

FIGURE 3:2 CALENDAR WINDOW

The user will not be able to move forward or press the "OK" button until a date is selected.
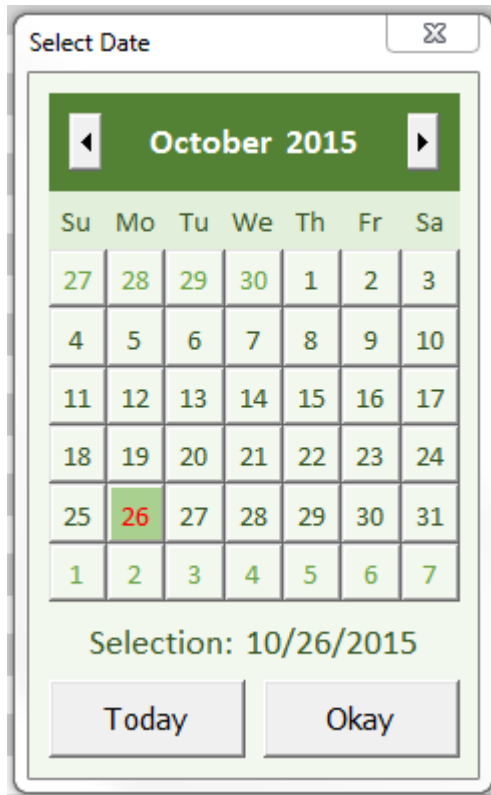
B) ADD NEW PROJECT

The "Add New Project" button brings up a window allowing the user to create a new project. The Add a New Project window can be seen in Figure 3.3. The window includes:

- Buttons
  - Choose Date
  - New
  - Reset
  - Return to Start
- Text Box Fields
  - State Project Number/Material
  - County
  - Road Number
  - Description
- Option Buttons
  - Project Number
  - Material

(1) PROJECT NUMBER

When the "Project Number" option button is selected the user is able to enter data for the State Project Number, County, Road Number, and Description fields.

The user must enter something into all the fields and select a date from the *Calendar* window before continuing. The State Project Number field must be in the form of "xxxx-xx-xx", i.e. 1234-56-78, before the user can continue also. As of this version the project number is in the format used by WisDOT, and cannot yet be changed to formats used by other DOTs.

(2) MATERIAL

When the "Material" option button is selected the user is able to enter data for the Material and Description fields. The County and Road Number fields are disabled.

The user must enter something into the Material and Description fields as well as select a date from the Calendar window before continuing. The Material field should include an identifying material and dates for which the material quantity was tracked, i.e. RAS May 2015. The "Material" option could be used to enter a state's annual recycled material quantities as opposed entering materials project-by-project.

(3) NEW

When the "New" button is clicked the information in the text box fields is entered into the *Projects Table* in the **Projects Sheet** and a new project sheet is created for the individual project (the user is automatically taken to the new project sheet.) The new sheet is titled with the project ID number or the description entered in the Material text box field, depending on the option button.
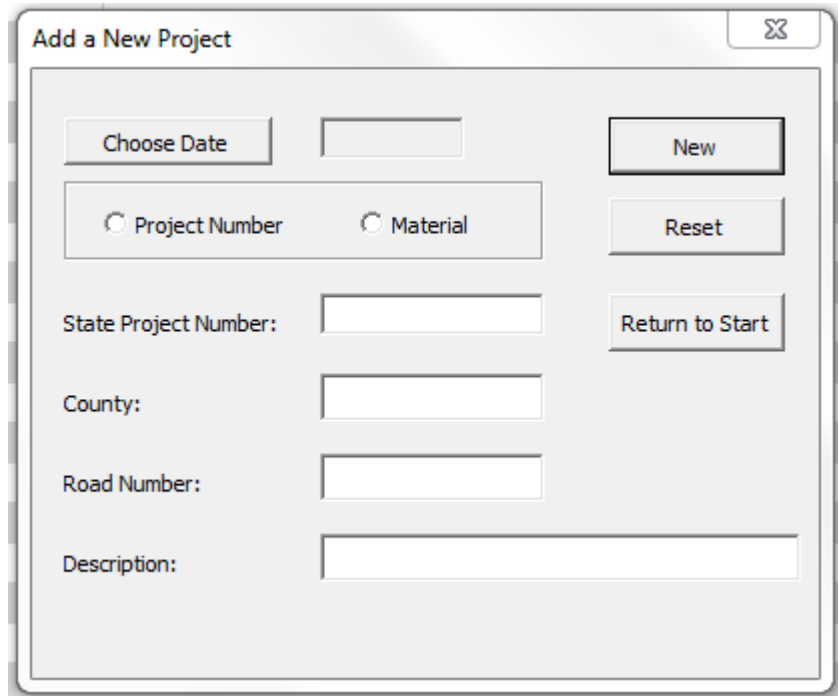

FIGURE 3:3 ADD A NEW PROJECT WINDOW

The new project sheet is a copy of the **State Wide Totals Sheet** without any data entered. The new project sheet will track all recycled material quantities for the individual project by cubic yards.

The "New" button will show a reminder message if the user does not select and fill out all the required fields.

(4) RESET

The "Reset" button allows the user to quickly clear the user entered information from all fields in the *Add a New Project* window.

(5) RETURN TO START

The "Return to Start" button closes the *Add a New Project* window, opens the *Start Menu* with the new project listed in the project list box, and brings the user back to the **Projects Sheet** where the new project is listed in the *Projects Table*.

C) OK BUTTON

The "OK" button, on the *Start Men,* closes the *Start Menu* and brings the user to the **Materials Sheet**. On the **Materials Sheet** the selected project number is entered in cell "B3" and the selected date is entered into cell "A1".

The "OK" button will show a reminder message if the user does not select a date and a project number.

D) CANCEL BUTTON

The "Cancel" button will close the Start Menu and keep the **Projects Sheet** as the current sheet.

B. MATERIALS SHEET

The **Materials Sheet** is where the user can enter a quantity of recycled material to be added to the selected project sheet and the state wide totals sheet. The **Materials Sheet** can be seen in Figure 3.4 and includes:

- User Input
  - Quantity cells – The user will only be able to enter data in highlighted cells (i.e., green, yellow and red)
  - % Mix Design cells
  - Hauling distance and mode
  - Dropdown Menus
    - Material Type
    - Bid Item
- Buttons
  - Add to Project/Total Logs
  - New Project
  - Material Descriptions
  - Delete Project or Data

When the **Materials Sheet** is first activated the user will only be able to use the "Material Type" dropdown menu and the "New Project", "Material Descriptions" and "Delete Project or Data" buttons. If the user changes sheets while entering data in the **Materials Sheet**, the Materials Sheet will be reset without entering the entered data to the correct **Individual Project Sheet** and **State Wide Totals Sheet**.

The **Materials Sheet** cannot be deleted manually or through the "Delete Project or Data" button in the **Materials Sheet**.

	A	B	C	D	E	F	G	H	I	J	K	L
1	10/26/2015											
2		**Project #**	**Material Type**		**Bid Item**		**Quantity**					
3		1234-56-78										
4												
5						**% Mix Design**						**Quantity**
6					Baghouse Fines	0.00%	0.00			Baghouse Fines	CY	
7					Blast Furnace Slag	0.00%	0.00			Blast Furnace Slag	CY	
8					Coal Bottom Ash	0.00%	0.00			Coal Bottom Ash	CY	
9					Coal Fly Ash	0.00%	0.00			Coal Fly Ash	CY	
10					Foundry Sand	0.00%	0.00			Foundry Sand	CY	
11					Kiln Dust	0.00%	0.00			Kiln Dust	CY	
12					Mineral Processing Waste	0.00%	0.00			Mineral Processing Waste	CY	
13			*Add to Project/Total Logs*		MSW Combuster Ash	0.00%	0.00			MSW Combuster Ash	CY	
14					Nickel Slag	0.00%	0.00			Nickel Slag	CY	
15			*New Project*		Copper Slag	0.00%	0.00			Copper Slag	CY	
16					Phosphorus Slag	0.00%	0.00			Phosphorus Slag	CY	
17			*Material Descriptions*		Lead, Lead-Zinc and Zinc Slag	0.00%	0.00			Lead, Lead-Zinc and Zinc Slag	CY	
18					Reclaimed Asphalt Pavement	0.00%	0.00			Reclaimed Asphalt Pavement	CY	
19			*Delete Project or Data*		Recycled Asphalt Shingles	0.00%	0.00			Reclaimed Asphalt Shingles	CY	
20					Reclaimed Concrete Material	0.00%	0.00			Reclaimed Concrete Material	CY	
21					Scrap Tires	0.00%	0.00			Scrap Tires	CY	
22					Sewage Sludge Ash	0.00%	0.00			Sewage Sludge Ash	CY	
23					Reinforcing Steel	0.00%	0.00			Reinforcing Steel	CY	
24					Steel Slag	0.00%	0.00			Steel Slag	CY	
25					Sulfate Wastes	0.00%	0.00			Sulfate Wastes	CY	
26					Waste Glass (Fine)	0.00%	0.00			Waste Glass (Fine)	CY	
27					Waste Glass (Coarse)	0.00%	0.00			Waste Glass (Course)	CY	
28												
29					Total:	0.00%	0.00			Total:	0.00 CY	

FIGURE 3:4 MATERIALS SHEET

1. USER INPUT

The user will interact with the **Materials Sheet** by selecting and entering the recycled material quantity to be added to the selected individual project and the state wide totals worksheets.

A) MATERIAL TYPE

The user will first select a material type from the "Material Type" dropdown menu. Material types include: Concrete, Asphalt-HMA, Base Course, Steel, and other.

The user will not be able enter data or select a bid item until a material type is selected.

B) BID ITEM

Once a material type is selected the user will be able to use the "Bid Item" dropdown menu to select a bid item based on the selected material type. Once a bid item is selected the user will be able to enter a quantity of the bid item based on the unit listed with the bid item and enter a percentage of recycled material based on the mix design of the selected bid item.

The bid items used are listed on the **Bid Items Sheet** and can be edited by the user. See the Bid Items Sheet section of this user manual to learn more about changing the listed bid items.

C) QUANTITY

When both a material type and bid item are selected from the corresponding dropdown menus, the user will then be able to enter a quantity of the selected bid item in the correct units. In some cases, i.e. when the bid item is measured in square yards (SY), the user will have to enter the bid item quantity as well as a depth dimension in the listed units. An instance of this can be seen in Figure 3.5.

Project #	Material Type	Bid Item	Quantity		Depth	
1234-56-78	Concrete	Concrete Pavement 7-Inch (SY)	50	SY	7	in
			29.17	CY		

FIGURE 3:5 ADDING A BID ITEM NOT MEASURED IN UNITS OF VOLUME

D) % MIX DESIGN

Once a bid item is selected the user will be able to enter the amount of recycled material used in the mix design of the selected bid item. The user will enter a percentage of the total quantity of the selected bid item for each recycled material used in the mix design. For example if a concrete pavement bid item was chosen and the mix design of the concrete pavement called for 15% percent fly ash, the user would enter 15 in the cell to the left of "Coal Fly Ash".

After the user enters a percentage, the cell will change from green to yellow, in order to easily identify those recycled materials used in the current bid item. If the total percentage becomes greater than 100, then those cells with greater than 0% will change to red, as a warning to the user.

The percentages entered will be converted to quantities in the list bid item units and then converted to units of cubic yards (CY) in the table to the left of the *% Mix Design Table*. The total recycled materials in the **Individual Project Sheets** and **State Wide Totals Sheet** are reported in CY.

2. ADD TO PROJECT/TOTAL LOGS

The "Add to Project/Total Logs" button adds the user entered recycled material quantities to the correct **Individual Project Sheet** and the **State Wide Totals Sheet**. Excel will then save the current file and then reset the **Materials Sheet** to its original state with the current project still listed in cell "B3" and the selected date in cell "A1".

3. NEW PROJECT

When the user clicks the "New Project" button, the **Projects Sheet** is activated, the *Start Menu* is brought up to allow the user to choose a new project to enter data to and the file is saved.

4. MATERIAL DESCRIPTIONS

The "Material Descriptions" button will open the RMRC recycled materials web page in a new window. From this web page the user can navigate through the listed recycled materials to learn more about the origin, production, physical and chemical properties, and management options for each recycled material.

5. DELETE PROJECT OR DATA

When the "Delete Project or Data" button is clicked a message box pops-up asking the user if they have,

1. The row numbers on the **Individual Project Sheet** they want to delete.
2. The **Individual Project Sheet** name or the project ID number.

The user can continue by clicking the "Yes" button, or quit by clicking the "No" button. If the user selects "Yes" the *Delete Data/Project* window is brought up, as seen in Figure3.6. Through this window the user can delete either an entire project or up to 10 rows of data of a single project.

FIGURE 3:6 DELETE DATA/PROJECT WINDOW

The window includes:

- Option Buttons
  - Rows of Data
  - Entire Project
- Text Box Fields
  - Rows
  - Project Number/Sheet Name
- Buttons
  - OK
  - Cancel

All text box fields are disabled until either "Rows of Data" or "Entire Project" is selected. The "OK" button will become enabled once a user enters an **Individual Project Sheet** name. The *Delete Data/Project* window can be closed at anytime by pressing the "Cancel" button.

A) ROWS OF DATA

Selecting the "Rows of Data" option button allows the user to input the Excel row number of the **Individual Project Sheet** they wish to delete. When the "Rows of Data" option button is selected, the "Row #1" and "Project #/Sheet Name" text boxes are enabled. Once the user enters a value in the "Row #1" text box field the "Row #2" text box is enabled, etc. The user must enter the Excel row numbers in increasing order or the next text box field will not be enabled and the "OK" button will become disabled.

In order to easily navigate through the text boxes the user may press Enter or Tab on the keyboard to move the cursor to the next text box field.

This option will automatically delete the identical rows of data on the **State Wide Totals Sheet** as well, so the data will only have to be entered once into the *Delete Data/Project* window. The **State Wide Totals Sheet** name should never be entered into the "Project #/Sheet Name" text box.

If the worksheets, **Projects**, **Materials**, **Bid items** and **State Wide Totals** are entered as a project number or sheet name, a message will pop up stating that the sheet cannot be modified. If a nonexistent worksheet is entered, a message will pop up stating the sheet name entered does not exist.

B) ENTIRE PROJECT

Selecting the "Entire Project" option button allows the user to input the **Individual Project Sheet** name they wish to delete into the "Project #/Sheet Name" text box. When the "OK" button is clicked an Excel warning will pop up stating "Data may exist in the sheet(s) selected for deletion. To permanently delete the data, press Delete." When the "Delete" button is clicked, the corresponding sheet will be deleted as well as any rows in the **State Wide Totals Sheet** corresponding to that project number/sheet name.

The worksheets, **Projects**, **Materials**, **Bid items** and **State Wide Totals** should never be deleted. A warning message will pop up if either these worksheets or a nonexistent worksheet are entered as a project number or sheet name.

C. BID ITEMS SHEET

The **Bid Items Sheet** lists the Wisconsin Department of Transportation (WisDOT) bid items used to populate the "Bid Items" drop down menu in the **Materials Sheet**. These lists may be modified to suit other state DOTs or agencies.

- Excel columns "A" through "C" list all WisDOT bid items.
- Excel columns "F" through "H" list all of the *Concrete* bid items available in the "Bid Items" drop down menu when *Concrete* is selected as the material type.
- Excel columns "J" through "H" list all of the *HMA* bid items available in the "Bid Items" drop down menu when *Asphalt-HMA* is selected as the material type.
- Excel columns "N" through "P" list all of the *Base Course* bid items available in the "Bid Items" drop down menu when *Base Course* is selected as the material type.

- Excel columns "R" through "T" list all of the *Steel* bid items available in the "Bid Items" drop down menu when *Steel* is selected as the material type.
- Excel columns "V" through "X" list any *Other* bid items available in the "Bid Items" drop down menu when *Other* is selected as the material type.

Any cell in the listed columns can be edited or changed. The existing list of bid items can be added to or deleted to fit the needs of the user. If a new bid item is logged, it must be logged in both the WisDOT bid items list and the corresponding material type list. The format of the new entry must follow the existing bid items format as well. For example, a "Bid #" must be entered in the first column, a "Description" including the bid item and unit of measurement must be entered into the second column, and a "Unit" must be entered into the third column. See Figure 3.7 for example.

Concrete Pavement		
Bid #	**Description**	**Unit**
405.01	Coloring Concrete Red (CY)	CY
415.006	Concrete Pavement 6-Inch (SY)	SY
415.0065	Concrete Pavement 6 1/2-Inch (SY)	SY
415.007	Concrete Pavement 7-Inch (SY)	SY

FIGURE 3:7 NEW CONCRETE BID ITEM

The **Bid Items Sheet** cannot be deleted manually or through the "Delete Project or Data" button in the **Materials Sheet**.

D. STATE WIDE TOTALS SHEET

The **State Wide Totals Sheet** tracks the total amount of recycled materials used in all projects entered in the current file. The total quantity of each recycled material is given in cubic yards. When an individual piece of data is added to a project through the **Materials Sheet**, a new row containing:

1. the date the data was added,
2. the project number/name the data was added to,
3. hauling information,
4. the data material type and bid item,
5. and the corresponding recycled material amounts

is added to the **State Wide Totals Sheet , Totals by Project Sheet** and the corresponding **Individual Project Sheet**. Each **Individual Project Sheet** is modeled after the **State Wide Totals**. The **State Wide Totals Sheet** may be sorted by categories such as bid item and material type. This allows the user to sort through the data easier.

The State Wide Totals Sheet cannot be deleted, but individual rows may be deleted by clicking the "Delete Project or Data" on **the Materials Sheet**. See the Delete Project or Data section of this User Manual, for more information.

E. TOTALS BY PROJECT SHEET

The **Totals By Project Sheet** sums the total recycled materials used for each project, allowing the user to easily see how many tons of coal bottom ash, RAP, etc, have been used by each project to date. The **Totals By Project Sheet** can also be sorted by categories such as project number, to allow the user to quickly locate the data needed.

IV. USING THE MATERIALS TRACKING TOOL

A. GETTING STARTED

The Tracking Tool can be found and downloaded on the RMRC website (rmrc.wisc.edu).

The Tracking Tool was creating using Microsoft Office Excel 2007 (v12.0) and can be used with Excel 2007, 2010, and 2013. The Tracking Tool has not yet been tested on Mac versions of Excel and it is not recommended to run the Tracking Tool on these versions of Excel.

After opening the Tracking Tool on a compatible version of Excel and before clicking the "Start" button on the **Projects Sheet**,

1. Enable all macros. When the Tracking Tool is first opened, the yellow message bar appears with a shield icon and the Enable Content button. Click the Enable Content button to enable macros.
2. Ensure missing references are resolved. (For all versions of Excel except 2007, and for Windows versions 8 and 10)

FIGURE 4:1 PROJECT NUMBER

FIGURE 4:2 MATERIALS

    a. Open the VBE Editor by pressing the Alt and F11 buttons at the same time.
    b. Open the "Tools" menu and select "References…"
    c. In the Available References list check if there is a "MISSING…" entry, this should appear near the top of the list. If there is, make sure the box is unchecked. Click OK.

B. ADD A NEW PROJECT TO THE PROJECT LIST

A new project can be added by clicking the "Add New Project" button in the *Start Menu* (Figure3.1), the *Start Menu* can be opened by clicking the "Start" button on the **Projects Sheet** or by clicking the "New Project" button on the **Materials Sheet**. Once the "Add New Project" button is clicked the *Add a New*

Project window (Figures 4.1 and 4.2) appears. A date must be selected from the *Calendar* window, by clicking the "Choose Date" button and either the "Project Number" or "Material" option button must be selected. Figure 4.1 shows an example if "Project Number" was selected and Figure 4.2 shows an example if "Material" was selected.

The "New" button in the *Add a New Project* window adds all the entered data to the "Projects" Table in the **Projects Sheet** and creates a new project sheet titled with the entered project number or material.

If any required field is left empty an error message will appear when the "New" button is clicked. Required fields include: "Date", "State Project Number", "County", "Road Number", and "Description" if entering a new project number or "Material" and "Description" if entering a new material.

To exit the *Add a New Project* window at any time, click the "Return to Start" button.

C. ADD NEW MATERIAL QUANTITIES TO A PROJECT AND STATE WIDE TOTALS SHEETS

After a date and project number are selected, and the "OK" button is clicked on the *Start Menu*, the **Materials Sheet** is activated. From here it is possible to add recycled material quantities to the selected project.

A "Material Type" must first be chosen from the "Material Type" dropdown menu, and then a "Bid Item" must be chosen from the "Bid Item" dropdown menu in order. After both have been selected a quantity of the bid item can be entered by the user in cell "F3". The quantity must correspond to the listed units in cell "G3". In some instances, the user may have to enter further information in cell "H3", instruction will be given on screen if this is the case.

The amounts of recycled material can be entered as a percentage of the total quantity by entering percent values of the bid item mix design in the corresponding cells "E6" through "E27" in the "% Mix Design" Table. The total quantities of recycled materials to be added are shown in the "Quantity" Table in the **Materials Sheet**.

Once the correct quantities of each recycled material are entered, the "Add to Project/Total Logs" button can be clicked and the data will be entered in the **Selected Project Sheet** and the **State Wide Totals Sheet**.

D. DELETING A PROJECT/DATA

Individual data entries or entire projects can be deleted through the *Delete Data/Project* window (Figure 3.6), which can be brought up by clicking the "Delete Project or Data" button in the **Materials Sheet**.

Before clicking the "Delete Project or Data", the Project Sheet name and Excel row numbers containing the data the user wishes to delete must first be known, only 10 rows of data or 1 project can be deleted at a time. A message box will pop-up asking if the required information is on hand, click the "Yes" button to continue onto the *Delete Data/Project* window.

An option to select "Rows of Data" or "Entire Project" is given at the top of the window. If "Rows of Data" is selected, Excel row numbers can be entered in the corresponding text boxes. Row numbers must be entered in numerical order, i.e. row numbers must be greater than the previous row number entered in order to enable the next text box. If a row number is less than the previously entered row number the next available text will not be enabled. The user may enter 1 to 10 row numbers to continue.

In order to enable the "OK" button, a "Project #/Sheet Name" must be entered in the corresponding text box. If the entered **Individual Project Sheet** name is not found, an error message will appear and the **Individual Project Sheet** name can be reentered, by clicking "OK" and closing the error message. An error message will also appear if **Projects**, **Materials**, **Bid Items** or **State Wide Totals** are entered in the "Project #/Sheet Name" text box. These are the main sheets of the Tracking Tool and therefore protected. If data is deleted from an **Individual Project Sheet**, the corresponding rows will also be deleted from the **State Wide Totals Sheet**.

If "Entire Project" is selected, a "Project #/Sheet Name" is the only information needed to enable the "OK" button and delete the entered project. As with the "Rows of Data" option, if the entered **Individual Project Sheet** name is not found, an error message will appear and the user can reenter the **Individual Project Sheet** name. An error message will also pop-up if **Projects**, **Materials**, **Bid Items** and **State Wide Totals** are entered in the "Project #/Sheet Name" text box. If an entire project is deleted, the corresponding rows of data will be deleted from the **State Wide Totals Sheet** and the project will be deleted from the "Projects" Table in the **Projects Sheet**.

E. FIND RECYCLED MATERIAL DESCRIPTIONS

Recycled material descriptions can be found by either, clicking the "Material Descriptions" button in the **Materials Sheet** or by clicking on the cell containing the name of the Recycled Material in the "% Mix Design" table in the **Materials Sheet**.

By clicking the "Material Descriptions" sheet a window will pop-up with the RMRC materials web page. From there, an in-depth description of each material can be found. If the individual material cells are clicked, a short 1 to 2 sentence description of the material will appear on screen. The description box may be removed by clicking on an empty cell.

F. ADD TO LISTED BID ITEMS

In the **Bid Items Sheet**,

- Excel columns "A" through "C" list all WisDOT bid items.
- Excel columns "F" through "H" list all of the *Concrete* bid items available in the "Bid Items" drop down menu when *Concrete* is selected as the material type.
- Excel columns "J" through "H" list all of the *HMA* bid items available in the "Bid Items" drop down menu when *Asphalt-HMA* is selected as the material type.

- Excel columns "N" through "P" list all of the *Base Course* bid items available in the "Bid Items" drop down menu when *Base Course* is selected as the material type.
- Excel columns "R" through "T" list all of the *Steel* bid items available in the "Bid Items" drop down menu when Steel is selected as the material type.
- Excel columns "V" through "X" list any *Other* bid items available in the "Bid Items" drop down menu when *Other* is selected as the material type.

Any cell in the listed columns can be edited or changed. The existing list of bid items can be added to or deleted to fit the needs of the user. If a new bid item is logged, it must be logged in both the WisDOT bid items list and the corresponding material type list. The format of the new entry must follow the existing bid items format as well. For example, a "Bid #" must be entered in the first column, a "Description" including the bid item and unit of measurement must be entered into the second column, and a "Unit" must be entered into the third column. See Figure 3.7 for example.

G. CLOSING THE MATERIAL TRACKING TOOL

The Tracking Tool can be closed as any other Excel file would be closed, by either pressing the "X" button in the top right corner of the Excel window or by selecting "Close" in the Excel File Menu. It is recommended that the file be saved before being closed.

If any of the windows in the file, i.e. the *Start Menu, Add a New Project, Delete Data/Project* and any error messages, are opened, they must be closed before the Tracking Tool can closed. The "X" button in the top right corner of the windows *Start Menu, Add a New Project, and Delete Data/Project* are disabled, but these can be closed by pressing the "Cancel" button on each window any time they are open. The "X" button on any pop-up/error message can be used.

Throughout the use of the Tracking Tool, the working file will automatically be saved when a new project is added to the file, i.e. when "New" is clicked on the *Add New Project* window, or when the "Add to Project/Total Logs" button is clicked in the **Materials Sheet**.

V. QUESTIONS/COMMENTS

For any further questions or comments, please visit the RMRC website (rmrc.wisc.edu), where contact information, Life Cycle Assessment, and materials research can be found.