

# EEBACS USER GUIDE 1.0

## Appendix D: Summary of Quantities

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### TABLE OF CONTENTS

### Page

D.1 Developing the Summary of Quantities Sheets .....	D-2
D.1.1 EEBACS Construction Estimate Tab .....	D-2
D.1.2 Division Microsoft Excel Worksheets .....	D-2
D.1.2.1 Spreadsheet Security .....	D-2
D.1.2.2 CSV Import.....	D-3
D.1.2.3 Finalize Summary of Quantities.....	D-4
D.1.3 Advanced Features .....	D-5
D.1.3.1 Hide Columns.....	D-5
D.1.3.2 Resize Pay Item Description and Remarks .....	D-5
D.1.3.3 Fit Content onto Sheet.....	D-5
D.1.3.4 Unprotected Cells .....	D-5
D.1.3.5 Minimum Rows per Sheet.....	D-6
D.1.3.6 Sheet Names .....	D-6
D.2 Under the Hood .....	D-7
D.2.1 Macros.....	D-7
D.2.2 Default Column Widths.....	D-7
D.2.3 About the Sheet Borders .....	D-7
D.2.4 The Calculations Tab .....	D-7

## D.1 Developing the Summary of Quantities Sheets

The "Summary of Quantities" sheets tabulate, combine, and summarize all the construction pay items in the plan set. EEBACS generates a report containing this data that can be exported into a Microsoft Excel spreadsheet.

### D.1.1 EEBACS Construction Estimate Tab

The Summary of Quantities may be run in EEBACS once the construction estimate is up to date. Go to the "Construction Estimates" tab in EEBACS, then:

- A. Select the "Generate Sum of Quantity Report". The report will be generated in three different formats Adobe Acrobat (PDF), Microsoft Excel Worksheet (Excel), and Microsoft Office Excel "Comma Separated Value" (CSV).
- B. Select and save the CSV file in any folder.

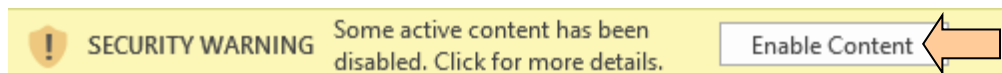
### D.1.2 Division Microsoft Excel Worksheets

Microsoft Excel worksheets have been developed to generate "Summary of Quantities" plan sheets that match the data in EEBACS.

There are two spreadsheets: one version for up to 13 column headers (normally used) and the other for up to 26 column headers. Both worksheets are available at <https://flh.fhwa.dot.gov/resources/estimate/downloads.htm>.

#### D.1.2.1 Spreadsheet Security

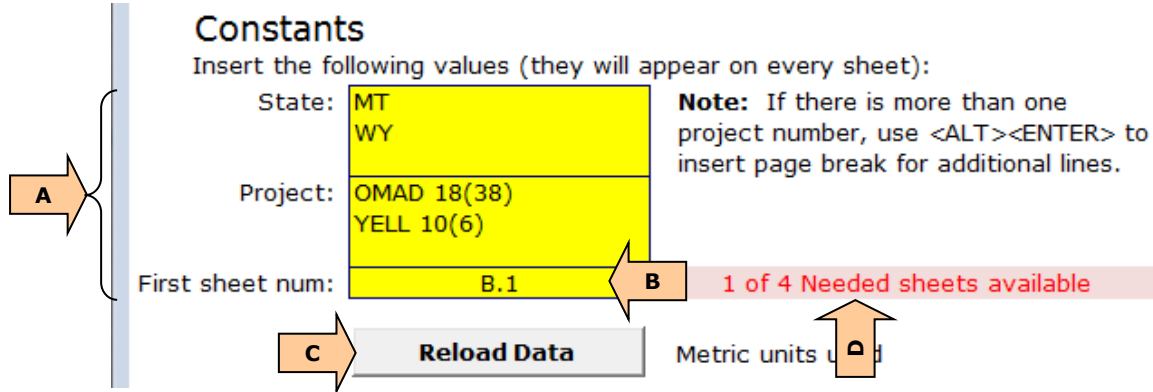
Upon entering the spreadsheet there may be a Security Warning above the worksheet. Select "Enable Content" to activate the macro used to safely import the CSV content.



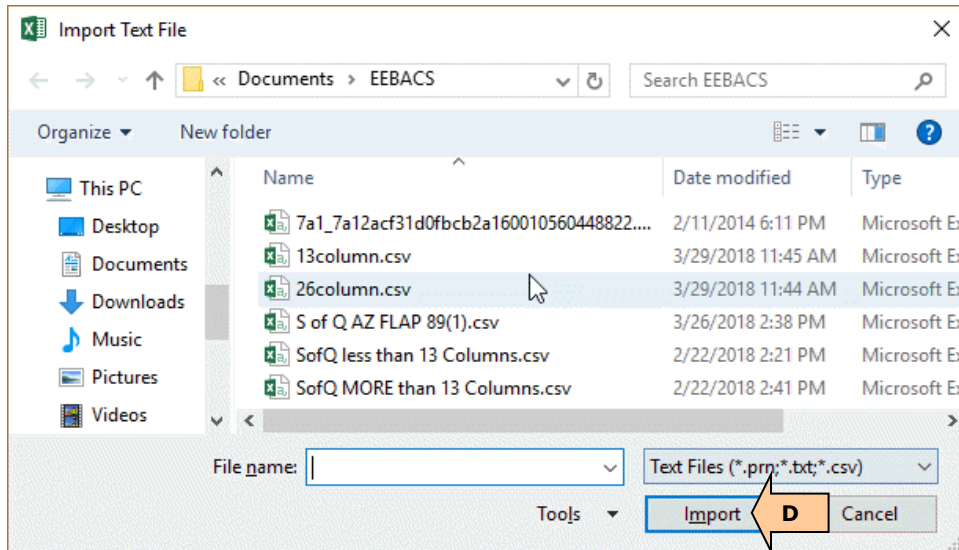
### D.1.2.2 CSV Import

Use the following steps to bring the EEBACS CSV file into the final plan sheets:

- A. On the *Information* tab, fill in the constants. This includes the state, project, and other information that appears on every sheet.
- B. Add the first sheet number for the Summary of Quantities. The remaining sheet numbers will be calculated from this number.
- C. Select the "Reload Data" button to make the "Import Text File" dialog box appear. Navigate to the folder where the CSV was downloaded. The currently loaded CSV file is shown by default.



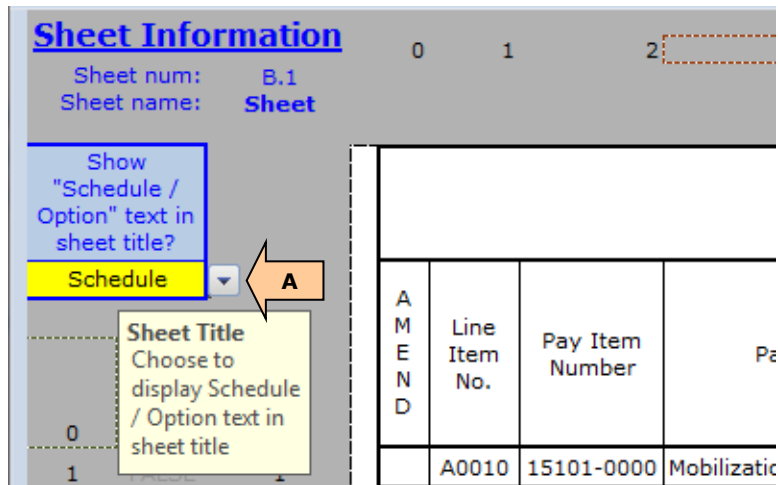
- D. Select the downloaded CSV file and click on the *Import* button. This brings the Summary of Quantity data into the worksheet. The units and number of tabulation sheets available and required are then calculated. Note the message (above) turns red when additional sheets are needed.



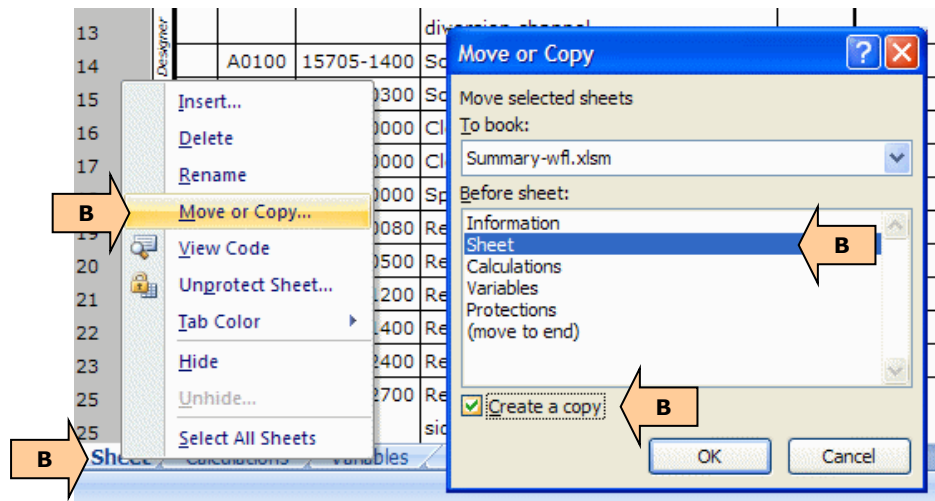
### D.1.2.3 Finalize Summary of Quantities

Modify the first sheet's appearance, then copy the sheet to provide the total required Summary of Quantities sheets:

- A. Go to worksheet *Sheet* which is the first sheet of the Summary of Quantities. The yellow highlighted field allows a choice between showing Schedule, Option, or nothing in the sheet title. Any changes made to this sheet will also be made to the sheets copied from this sheet. Individual sheets can be modified individually. See the [Advanced Features](#) for additional ways to change the plan sheets.



- B. To copy additional sheets right click on one of the Sheet tabs. Select "Move or Copy..." which brings up a new dialog. Check the "Create a copy" box, then select the sheet to copy. There is no need to rename the new sheets. (Consult [Sheet Names](#) under Advanced Features if sheets must be renamed.)



Sheets may also be copied by dragging the selected sheet tab. Hold down CTRL, and then drag the sheet; release the mouse button before releasing the CTRL key.

Copy as many sheets as necessary to provide for all needed sheets.

**Note:** Prior to saving the file for the first time there will be errors on the Sheet tabs. These disappear once the file has been saved. Sheet numbers may not update until after exiting and returning to the file.

## D.1.3 Advanced Features

### D.1.3.1 Hide Columns

Columns may be hidden on the *Sheet* worksheet if not needed. Do not physically remove a column. To hide a column, select the column and right click. From the menu select *Hide*. The column disappears.

To bring back the hidden column, select a range of columns which spans the hidden column and right click. From the menu select *Unhide*. The column reappears.

**Note:** When using the 26 Column output, only delete columns from the right side; that is, the columns immediately to the left of the Estimated Quantities column. Deleting a column in the middle may cause some of the data to not appear correctly.

Be sure to press <F9> after hiding or un-hiding a column.

### D.1.3.2 Resize Pay Item Description and Remarks

After hiding columns additional room will be available on the sheet. Allocate this additional space for wider *Pay Item Description* and *Remarks* columns. Select the right side of the Excel column heading and drag to the desired width.

When complete press <F9> so that the spreadsheet can recalculate the page breaks in these two columns.

See also the [\*Default Column Widths\*](#).

### D.1.3.3 Fit Content onto Sheet

After changing column widths ensure that the content still fits properly on the plan sheet. The white area on the Sheet is the printing area. Column D and AA extend beyond the border line in order to balance the sheet on the page. The right side of column D should align with the left sheet border. The left side of column AA should align with the right sheet border.

Un-hide columns E and Z to create an optional left and right inner margin. The left side of column E should align with the left sheet border. The right side of column Z should align with the right sheet border.

### D.1.3.4 Unprotected Cells

Most of the cells in the spreadsheet are protected except for the yellow highlighted cells which allow user input.

The cells on the lower right of the Summary of Quantities sheet are also unprotected. If extra notes such are required, place those here.

### D.1.3.5 Minimum Rows per Sheet

So that no plan sheet will only have a single pay item listed on it, a minimum-number-of-rows (minRows) variable is defined. The default value is 5. This can be changed on the *Variables* worksheet.

### D.1.3.6 Sheet Names

By default the plan sheet worksheet is called "Sheet" and there is no need to change it. When copied, this name is automatically appended with (2), (3), etc. If the name is changed, record the new name in the *Base sheet name:* cell (cell name Base) on the *Variables* worksheet. It is also possible to rename each sheet individually, but these names must be inserted into the Worksheet column of the Sheet Names tables. The sheets will be numbered in the order that they appear in this table.

The Sheet Names table on the *Variables* worksheet lists the needed Summary of Quantities sheets. The sheets shown in bright green are needed to have a complete Summary of Quantities. If a sheet does not exist, a red **Undefined** will appear. Normally there is no need to change anything here unless the sheet names change.

## D.2 Under the Hood

This section provides information about how the spreadsheet works and some of the underlying assumptions.

### D.2.1 Macros

There is one macro in the spreadsheet. It is associated with the "Reload Data" button on the *Information* worksheet. This macro goes to the *Calculation* tab, turns off the protection, asks the user for the location of the CSV file, turns on the protection, and then takes the user back to the *Information* worksheet.

The purpose of this macro is to simplify entering the CSV data, while at the same time making it more difficult to change the data. See [Spreadsheet Security](#) for more information.

### D.2.2 Default Column Widths

The default column widths for the *Sheet* worksheet are as follows:

Column	Size	Column	Size
D	1.43 (15 pixels)	J	6 (47 pixels)
E	4 (33 pixels) *	K to X	9 (68 pixels)
F	3 (26 pixels)	Y	22 (159 pixels)
G	6 (47 pixels)	Z	4 (33 pixels) *
H	10 (75 pixels)	AA	1.43 (15 pixels)
I	30 (215 pixels)		

\* Columns E and Z are hidden by default

### D.2.3 About the Sheet Borders

The sheet border is a static graphic. As long as the protection is not turned off, it should not move or change. If the border appears to no longer fit within the white area of the Tabulation of Quantities sheet it is most likely that one of the rows or columns has been inadvertently resized.

### D.2.4 The Calculations Tab

The CSV file is imported into the *Calculations* tab by the macro. The data is then automatically placed on the Tabulation of Quantities sheets.

The formulas to the right of the data calculate where multiple lines are required for long pay item descriptions and long remarks. They also are used to calculate where page breaks occur. The formulas automatically copy down when new data is imported as long as the formulas are located adjacent to the data. If bad data is imported the formulas may move, or a gap may form; either of which will result in unpredictable results.

The following table describes the functionality of the columns:

Column Letter		Function
13-Col	26-Col	
A – U	A – AH	Data imported from CSV (light blue area)
V	AI	Counter indicating new schedule on following line
W	AJ	Line number for new pay item taking into account multiple lines from Pay Item Descriptions and/or Remarks
X	AK	Beginning line number of current schedule
Y	AL	Copy of Line Item number from imported data
Z	AM	Cleaned copy of Pay Item Description
AA – BF	AN – AZ	Character number of new word in Pay Item Description. This is used to find good locations for a line break. Orange area delineates the beginning and end of the description.
BG – BN	BA – BI	Character number for line break in Pay Item Description. Blue area delineates the beginning and end of the description.
BO	BJ	Number of lines required for Pay Item Description (yellow)
BP	BK	Cleaned copy of Remarks
BQ – CV	BL – BY	Character number of new word in Remarks. This is used to find good locations for a line break. Orange area delineates the beginning and end of the remark.
CW – DD	BZ – CH	Character number for line break in Remarks. Blue area delineates the beginning and end of the remark.
DE	CI	Number of lines required for Remarks (yellow)
DF	CJ	System of units for pay item unit. This is used to determine if project uses Metric or US Customary units.

By default the spreadsheet is set up to handle a maximum of 32 words in the Pay Item Description and Remarks fields. If more are present then the text string will be truncated. The maximum number of lines per pay item is currently set to 8. If more are needed and adjusting the sheet column widths does not help, additional columns will need to be added to the calculation sheets. To add additional words or lines add columns to the orange (words) or blue (lines) area then copy the adjacent formulas into the red and black striped cells. A message will appear on the *Information* tab when pay item description or remarks are truncated.