



Name:

GENSUM_VBA_AASHTOWARE.xlsm

Tested Excel Version:

Microsoft Excel 2013, 32bit version

Description

The GENSUM_VBA_AASHTOWARE.xlsm is an Excel file used to create General Summary Sheets. It was developed to assist the Office of Estimating import data into their AASHTOWare software. It has since been updated to make it easier and faster to create a general summary for a project

The file can be found in the following places:

ODOTcadd Standards: ODOTcadd/Standards/ODOT/ProjectTools/

Office of Estimating Website:

<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Estimating/Pages/General-Summaries.aspx>

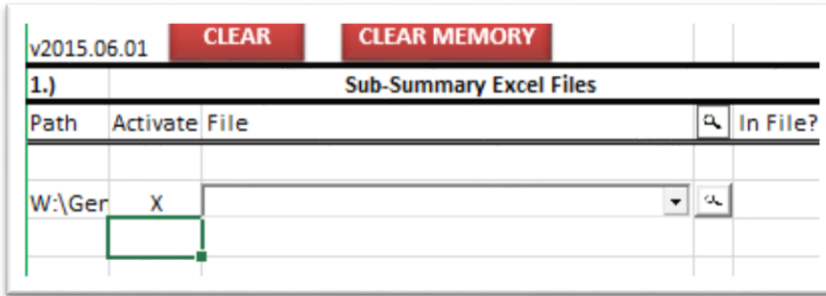
The main purpose of this documentation is to explain how the ProjectInfo sheet is set up and how to use it. The ProjectInfo sheet can be used to bring in data from sub-summaries and set up the general summary sheet for you.

Details

Starting from the top left of the ProjectInfo sheet the user notice a general format for the sheet. The top three visible rows of the sheet act as a heading area and contain buttons that perform various tasks as well as column headings. There is a black double underline going horizontally through the sheet that acts as a visual separator for the heading areas. Another general format that can be seen is vertical green lines. These lines are used to separate sections so the user can easily see the different sections. As the user scrolls to the right they will see vertical red bars. This should act as an indicator that the user does not need to look at the columns to the right of the vertical red bars. Those columns are used to store data that is used to perform various tasks. The user will also notice that there are numbers 1-9 throughout the sections. These numbers represent steps for filling out the ProjectInfo Sheet. The steps make it simple and easy for the end user to follow and understand. Now let's take a look at each of the sections in more details

Section 1.) Sub-Summary Excel Files

This section is the first step in filling out the ProjectInfo Sheet. This section is used to set the location to sub-summary excel files that the user would like to bring in item data from. This section comprises for 5 columns. The Path column should be left along as it is filled out automatically. The Active column is used as a trigger. Once the user places any kind of text in that column a dropdown box and search button will appear for that row. Most users either place an X or page number in the activate column but it ultimately does not matter what text is placed in the column as it is only used as a trigger to display the dropdown box and search button. The image below shows what happens once a row is activated.



By default once a row is activated the dropdown box will be populated with the name of any excel files that are located in the same folder that the current GENSUM_VBA_AASHTOWARE.xlsm file the user is working in is saved. Which should be saved in the projects \Design\Roadway\EngData folder. This is also the location where majority of the sub-summary excel files should be saved. The user will also notice that the path column as filled out with the path to the folder where the current GENSUM_VBA_AASHTOWARE.xlsm file is saved. When tasks are ran in later steps, the code uses the path and selected excel file name to locate the Sub-summary file to extract data from it. If a sub-summary is saved in a different location the user can use the search button (located next to the dropdown box) and a folder browser to open up (see image below). The user can navigate to the desired folder and hit okay. This is a folder browser, it will only show folders, no files will be displayed. After the user hits okay the dropdown box will be populated with all excel files found inside the folder the user selected in the folder browser. The path column will also be updated to the path to the folder that the user selected in the folder browser. Each sub-summary file for a project needs to be listed on its own row in this section. Each sub-summary should only be listed one time, do not list it more than once or the item data from that file will be extracted multiple times.

The last column in this section, the In File? Column allows the user to select specific sheets inside the GENSUM_VBA_AASHTOWARE.xlsm file. This column as a pull down list, selecting the X will act as a trigger to repopulate the drop down box with valid sheets found inside the file. It will also change the path to the name of the current file. Some offices may prefer to have their sub-summary sheets in the same file as the general summary, the In File? Column allows for this process to still work for those cases. This can offer advantages like easier linking between sheets. For large projects where multiple users will be editing the files at the same time it would be better to have the sub-summaries separate.

For this process to work the sub-summary sheets must be set up correctly for this process. There are several template sub-summary sheets already set- up in the ODOTcadd standards. See Setting up sub-summaries documentation for more information on this. This section can also be used for structure summaries as well.

Once this section is filled out, it should list all the excel files that contain item data that needs to be displayed on the general summary sheet. Section 2 will handle all other items. Note that the user can leave blank rows in this section if desired. If a project does not have any sub-summary sheets then this section can be skipped.

CLEAR

This button is used to clear the entire ProjectInfo sheet and General Summary sheet. It will bring the two sheets back to their original blank states. The red Clear Memory buttons will be explained later.



Section 2.) Items not in Part 1

This section is mainly for item data found in notes or not that are not found on the sheets listed in section one. This section has 6 columns. The user will notice that by default some items are already filled out. This can be customized per office. See customization for details. The image below shows the columns that make up this section.

Item Search					
2.) Items not in Part 1					
Page #	Split #	Item #	Quantity	Additional Desc.	(Unit) Description
0		614E11000			(LS) MAINTAINING TRAFFIC
0		619E16010			(MNTH) FIELD OFFICE, TYPE B
0		623E10000			(LS) CONSTRUCTION LAYOUT STAKES AND SURVEYING
0		624E10000			(LS) MOBILIZATION
0		832E30000			(EACH) EROSION CONTROL

This section acts as a list. Each line should list the page #, Split #, Item #, Quantity, and Additional Desc. In their respected columns. If the item does not appear anywhere in the plan other than the general summary then use a page number of 0. If an item has quantities for multiple funding splits then a line is needed for each funding split. The (Unit) Description column will fill out automatically as you type in item #s. the unit will be in front of the description in parentheses. The unit and description is filled out from the item master. Use the Search Item Master to help find Item Numbers. This is found in the ODOT ribbon that is loaded from the ODOT add-in. See _____ for more information. The Additional Desc. Column will turn yellow for a cell if the listed item number should have an additional description. The cell will turn back to white once an additional description is entered. Once this section is filled out, between sections 1 and 2 all item data for a project should be listed. Note just as in section 1, the user can leave blank rows in this section if desired.

Section 3.) Funding Splits

Bridge Work?	
3.) Funding Splits	
Split #	Split Names
1	01/S>2/PV
2	02/S>2/PV/NFRA
3	03/S>2/BR
4	04/S>2/OT/NFRA

This section as the image below shows, is for listing all the funding splits for a project.

The Split # column should be filled out with the split number. The Split Names Column should be filled out with the funding split name. Note just as in the previous two sections the user can leave blank rows in this section if desired.

The red Bridge Work? Check box should be checked if there is structure work on the project. When this is done sections 4 and 5 will be displayed. If there is no structure work on this project then sections 4 and 5 may be skipped.



Section 4.) Bridges

This section acts as a list for all the bridges that there is being work done on. The user should only list bridges that are called out on the structure summary sheets. The image below shows section 4.

4.) Bridges			
pg.	Bridge Name (C-R-S)	Split #	>=20' Span (Y/N) New? (Y/N)

The pg. column should be filled out with page number the bridge summary for the bridge is found on. The Bridge Name (C-R-S) column should be filled out with the bridge name, this should match exactly the bridge name you listed in the bridge summary excel file. It will be used to verify the data from the bridge summary. The Split # column should list the funding split # for that bridge, not the funding split name. The >=20' Span (Y/N) column has a pull down list of Y and N. select Y if the bridge span is greater than or equal to a 20' span, select N if the span is less than 20'. The New? (Y/N) column acts the same way with the pull down list. Select Y for this column is the bridge is a new construction. Select N if the bridge is not a new construction. These last two column in this section help determine what heading the bridge items should go under.

Section 5.) Bridge Items Not in Part 4

This section should almost never be used. This section acts similar to section two but for bridge items. This section should only be used for bridge items that do not appear on the bridge summary sheet. Every item should be listed in the same way the user filled out section 2 and 4. The image below shows the columns in section 5.

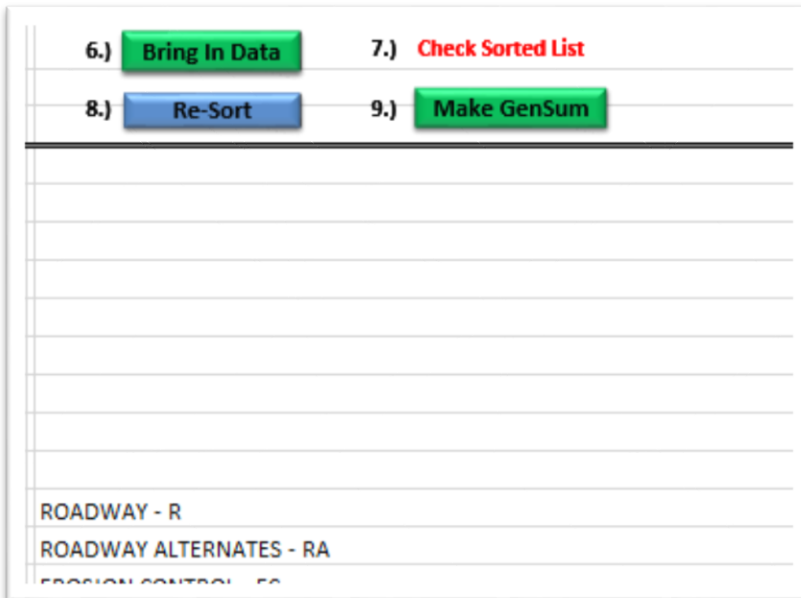
5.) Bridge Items Not in Part 4							
Bridge Name (C-R-S)	Over 20' (Y/N)	New? (Y/N)	Page #	Split #	Item #	Quantity	Additional Des((Unit) Description

If the item was listed in section 2 the user should remove that item from section 2. If not in the next step the code will attempt to find those items and remove them when running tasks. It will still leave the items in section 2.



Section Processes:

This section contains steps 6-9. This section and the following section work hand-in-hand. The image below shows what this section looks like.



The list below the heading area is a list of all the headings for a general summary sheet with their heading abbreviation. This list will be used in step 7.

Step 6 has a **Bring In Data** button. When the user selects this button it will start a process that will set up the next section. The process starts with going through all the files listed in section one. The files will be opened, verified that the file is a valid sub-summary file. If the row lists a file then it will cycle through all sheets in that file looking for valid sheets and will bring in all the item data on that sheet. If the row lists a sheet inside

the gensum file then it will only verify and bring in item data from that specific sheet. The data that is brought in is page numbers, split numbers, item numbers, additional descriptions and quantities. If the sheet is not valid a message box will appear letting the user know which sheet is not valid and will then continue processing. The process then looks at section two and adds that item data as well. At this point the code combines any like item with a like additional description and adds the quantities together. If an item does not have a page #, Split # and item # listed then it is skipped over. It is very important that the sub-summaries are filled out correctly or item data can be left out. After the code has combined like data and ID is assigned to each unique item. This ID is used in the rest of the processes. The item data is then placed into the next section and a custom sort is applied to the list. This custom sort uses what's specified in L&D volume 3 for what items go with certain headings. The custom sort will sort items into general summary headings, it is fairly accurate but not 100% perfect. This is the reason for step 7.

At this point the following section contains a sorted list of all the items. This list will be used to fill out the general summary sheet. Step 7 is to review this list so that it looks like how you want the general summary sheet to look like. The picture below shows an example of the summary section (the next section). The first column is labeled SUMID. This is the ID that was given to that unique item and additional description combination. The user should not change this column at all. The next column is the SumCode column. This column will list the first three digits of the item #. This is the column used to perform the custom sort. The user may notice some of the SumCodes are red. This is to indicate that this three digit code is known to have item #'s in multiple headings. The user needs to make sure the item is in the correct heading. If it is determined the item is in the wrong heading. The user simply needs to add the desired headings abbreviation to the front of the three digit number. When the user gets to step 8 and hits the Re-Sort button the item will be sorted to the desired heading. The SumItem item lists the item number. The user should not change this column at all. The next column is the SumQty column. This column lists the total quantity for that unique ID. This column should not be changed by the user. The next column is the SumAddDesc column this column will list any additional descriptions or for heading



rows it will list the heading. Occasionally there will be items that on a sub-summary sheet will list for example a thickness in the additional description. This may cause the same item # two be listed multiple times for each different additional description. Majority of the time the general summary only lists that item one time. To achieve this the SumAddDesc column can be changed to make those rows have the same additional description. Most of the time the user will just delete that additional description. When the user gets to step 8 and hits the re-sort button the Summary section will be updated with those now like item and additional description rows being combined to one. Once the user has gone through the Summary section and has made all the desired changes they should move to step 8.

Sum	SumCode	SumItem	SumQty	SumAddDesc	SumDesc
	ROADWAY			ROADWAY	ROADWAY
29	202	202E23500	4304		(SY) WEARING COURSE REMOVED
34	202	202E38000	2913		(FT) GUARDRAIL REMOVED
7	209	209E60200	400		(STA) LINEAR GRADING
27	209	209E72001	773		(STA) PREPARING SUBGRADE FOR SHOULDER PAVING,
35	606	606E15050	2250		(FT) GUARDRAIL, TYPE MGS
36	606	606E26050	1		(EACH) ANCHOR ASSEMBLY, MGS TYPE B
37	606	606E26150	18		(EACH) ANCHOR ASSEMBLY, MGS TYPE E
38	606	606E27820	12		(EACH) ANCHOR ASSEMBLY, MGS TYPE T
24	690	690E50100	17		(EACH) MAILBOX SUPPORT SYSTEM, SINGLE
25	690	690E50200	2		(EACH) MAILBOX SUPPORT SYSTEM, DOUBLE
	ROADWAY ALTERNATES			ROADWAY ALTERNATES	ROADWAY ALTERNATES
	EROSION CONTROL			EROSION CONTROL	EROSION CONTROL

Step 8 has a **Re-Sort** button. When the user selects this button. It will go through the summary section and resort the section with any changes as well as combine any rows that after changes are now like items. The user should check over the summary section again and make any additional changes as need and then hit the re-sort button again. Once the user is done making edits they should move to the final step of the project info sheet, step 9.

Step 9 has a **Make GenSum** button. This button will fill out the general summary sheet for the user. The code will first remove any unused headings from the summary section. It will then place this list on the general summary sheet. The code will figure out the number of sheet and part columns need and change to those numbers on the general summary sheet. It will then place all the sheet quantity totals for the items and will attempt to sum and round the split quantities for the items. Since sub-summaries sum and round item quantities to get sheet totals and split quantities are not there can be slight differences in quantities between the two. The code does attempt to round the split totals but it is impossible to be 100% perfect. The General Summary sheet has conditional formatting set up to turn the part column cells red of a row where the sum from the sheet total quantities do not match the sum from the part total quantities. The user should check the different in quantity between the sheets and parts. If the difference is only 1 or 2 units then the difference is most likely due to rounding errors. If the difference is larger than a mistake was mostly like made. The most common cause is forgetting to place a Split # or page # on the sub-summary file. Make sure the sub-summary file is filled out correctly. The rest of the general summary sheet can be filled out is it was in previous versions before the projectinfo sheet.

It is important to note that the ProjectInfo sheet works statically. Meaning if changes are made to sub-summary sheets steps 6 and 9 need to be repeated for the changes to make it to the general summary



sheet. The user should not just make changes to the general summary sheet as these changes would be lost the next time the user repeats steps 6 and 9.

In order to make the projectinfo sheet more useful it has been set up to store certain changes. This is so that when the user need to re-run steps 6 through 9 they don't have to remake changes previous made. When the user performs step 6, after the first time the code looks for changes and stores it. It will store any SumCodes that the user added a heading abbreviation to the front of (in order to get the item to sort to a different heading). It will also store changed made to the Sum AddDesc column. On a re-run of step 6 the stored changes are applied so the user does not have to re-do this work.

The code also stores any changes made to the part quantity totals on the General Summary sheet, and when makes these change for the user when the Make GenSum button is selected in step 9 so the user does not have to re-do the work. In the event that the quantity for that item has changed then the stored change made to the part quantity totals will not be saved or replaced due to the fact that it could be incorrect with the change is quantities.

The code will also store any see sheet no. filled out for an item. Note of caution the code has no way of knowing if the see sheet no. has changed. This could cause this column to be incorrect as changes to the plan are made.

CLEAR MEMORY

The clear memory button can be used to clear all the stored changes explained above from the file. This will not clear any data in sections 1 through 5.

Section Summary:

This section was mostly explained in the previous section. There are two red checkboxes at the top of this section, as the image below shows.



Bridges and Retaining walls are the only two headings that require each bridge/retaining wall to have their own heading. This creates a problem for the way the Summary section works since like items are combined to one line. But for bridges and retaining walls there can be the same item in multiple headings. Which the summary section is not set up for. For this reason the bridge and retaining wall headings in the summary section should not have any items listed under them. So if a bridge summary or retaining wall summary is listed in section 1 when the code processes those sheets it creates a bridge sheet or Retaining Wall sheet it organizes and places the data into those sheets. Then when the make GenSum button is press in step 9 the data gets added to the general summary sheet in the appropriate place. How the data is show depends on if the red checkboxes shown above are checked or not.

For bridges there are three main headings, Structure Repair, Structure under 20 foot span, and structure 20 foot span and over. The last two are only used for new construction bridges. If the first red check box, Show Bridge Items on GenSum is not checked then the appropriate bridge headings will be placed on the general summary and the bridge names that go with that heading will be listed under the appropriate heading. So the actual bridge items will not be shown on the general summary. When the data sheet is created these structure items will still be place in the data sheet. If the checkbox is checked



then each bridge will be listed in its own heading with all the items that go with that bridge. This same logic is used for the other red checkbox, Show Retaining Wall Items on GenSum.

Contacts

If you have any questions, suggestions, or problem with this application please contact the ODOT Office of CADD and Mapping Services by use of the following form on the ODOT website:

<http://www.dot.state.oh.us/Divisions/Engineering/CaddMapping/CADD/Pages/Suggestions.aspx>