

# ASSET MANAGEMENT

MRWA



2023



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# Asset Management Template Tabs Explanations & Helpful Tips

## First Things First...

Some things you need to know before entering data into the asset management template.

- Don't type in the yellow cells on the data tab. More explanation can be found further into the instructions.
- There's place holder data on the data tab that needs to be left there until you replace with your data. Example: Distribution Meter place holder needs to be replaced with your Distribution Meter information.
- The undo function is your friend! If you find that you have typed something in error, all you need to do is use the undo function.
- Good information in = good information out! Take your time entering data and watch for accuracy!
- Lastly and most importantly, if you have entered a lot of data and something doesn't seem right, please save it and call for help! We can try to fix the issue. Call the Minnesota Rural Water Association Office at 1-800-367-6792.



## Spreadsheet Tabs

### Title Page

Insert the name of the person(s) that completed (or updated) the plan along with the year.

|              |  |
|--------------|--|
| Prepared by: |  |
| 2022         |  |

### Introduction Tab

This tab provides an introduction to asset management along with a description of the five core components of asset management.

### Data Tab

This tab contains all of the asset management data. This is setup in Table format. End users will enter information into the columns that are NOT a yellow fill (Columns I, K, L, N, O, R, S, T). These cells contain formulas that will automatically fill the correct data in.

The information in the Data Tab will drive and supply the information for the following tabs:

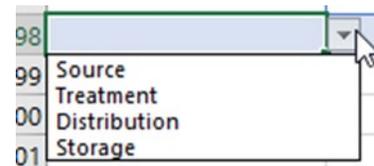
- Water System Inventory
- Source
- Treatment
- Storage
- Distribution
- Meters
- Hydrants
- Valves
- Dist Line Watermain
- Overall Condition
- Asset Graphs

STOP & READ: You CAN NOT enter data over the yellow cells or you will destroy the formulas and data integrity.

| Distribution Information |   |             |  |                             |                           |                  |   |           |                |                  |                |               |         |
|--------------------------|---|-------------|--|-----------------------------|---------------------------|------------------|---|-----------|----------------|------------------|----------------|---------------|---------|
| Infrastructure Type      | Assets                                  | Useful Life | Item   | Size (* Indicator Required) | Length (Only Enter Value) | Material         | Location  | Condition | Year Installed | Replacement Date | Remaining Life | Original Cost | Current |
| Distribution             | Distribution Line/Watermain             | 80          | 400' of 6" PVC   | 6"                          | 400                       | PVC              | Intersection of Hwy 75 & 3rd St. to intersection of 3rd St. & Spokely Ave.  | Good      | 1995           | 2075             | 53             | \$ 8,620.00   | \$      |
| Distribution             | Distribution Line/Watermain             | 80          | 350' of 6" PVC   | 6"                          | 350                       | PVC              | Intersection of 3rd St. & Spokely Ave. to intersection of 2nd St. & Spokely | Good      | 1995           | 2075             | 53             | \$ 7,543.00   | \$      |
| Source                   | Electrical Equipment                    | 40          | Well #1  |                             |                           |                  | 123 1st St NE   | Excellent | 2017           | 2057             | 35             | \$ 4,500.00   | \$      |
| Treatment                | Electrical Equipment                    | 40          | Pump Disconnect  |                             |                           |                  | 789 2nd St NW   | Good      | 1998           | 2038             | 16             | \$ 2,500.00   | \$      |
| Storage                  | Storage Tank - Tower, ground, standpipe | 70          | Water Tower  |                             |                           |                  | 222 1st St NE   | Good      | 1998           | 2068             | 46             | \$ 567,000.00 | \$ 37   |
| Distribution             | Valve                                   | 40          | Tower Isolation Valve  | 1"                          |                           | Copper           | Water Tower alley   | Good      | 1998           | 2038             | 16             | \$ 2,000.00   | \$      |
| Distribution             | Service Line                            | 40          | Service Line   | 1"                          |                           | Lead             | 427 N Main  | Good      | 2010           | 2050             | 28             | \$ 500.00     | \$      |
|                          |   |             | Start entering your data by typing over the information in line 4 and continuing to add here |                             |                           |                  |   | NA        |                |                  | 0              | 0             | \$      |
| Distribution             | Meter                                   | 40          | 201 main street  | 1"                          |                           |                  | 201 main street   | Excellent | 2020           | 2060             | 38             | \$ 200.00     | \$      |
| Distribution             | Meter                                   | 40          | 301 main street  | 3/4"                        |                           |                  | 301 main street   | Excellent | 2020           | 2060             | 38             | \$ 200.00     | \$      |
| Distribution             | Valve                                   | 40          | Tower Isolation Valve  | 3/4"                        |                           | Copper           | Water Tower alley   | Good      | 1998           | 2038             | 16             | \$ 2,000.00   | \$      |
| Distribution             | Hydrant - Fire                          | 60          |  | 6"                          |                           |                  |   | Excellent | 2020           | 2080             | 58             | \$            | \$      |
| Distribution             | Hydrant - Fire                          | 60          |  | 6"                          |                           |                  |   | Fair      | 1980           | 2040             | 18             | \$            | \$      |
| Distribution             | Hydrant - Fire                          | 60          |  | 6"                          |                           |                  |   | Poor      | 1950           | 2010             | 0              | \$            | \$      |
| Distribution             | Distribution Line/Watermain             | 80          |  | 5"                          |                           | 500 Ductile Iron |   | Good      | 1980           | 2060             | 38             | \$            | \$      |
| Distribution             | Distribution Line/Watermain             | 80          |  | 8"                          |                           | 1000 PVC         |   | Good      | 1980           | 2060             | 38             | \$            | \$      |
| Distribution             |   |             |  |                             |                           |                  |   | NA        |                |                  | 0              | 0             | \$      |

**Column A**

Infrastructure Type: Select Source, Treatment, Distribution, or Storage from a drop down list box.



**Column B**

Assets: Enter the defining name of the asset from the drop down list.

**Column C**

Useful Life: Enter the estimated useful life of the asset. Useful life guidelines can be found on the Useful Life Tab.

**Column D**

Item: Enter the specific name of the asset.

**Distribution Information Columns** – Columns E, F, and G are for distribution assets. Entering these specific items will help provide information for the distribution item pivot tables in the template. The pivot tables on the purple tabs (Meters, Hydrants, Valves, and Dist Line Watermain) will provide the Distribution Inventory information that the Minnesota Department of Health requests from all municipal community public water systems. The information entered into these cells will drive and supply the information in the following tabs where size, material and length are requested by the Minnesota Department of Health from municipal community public water systems:

- Meters
- Hydrants
- Valves
- Dist Line Watermain

**NOTE:** The depreciation formulas in the template are set up to depreciate the asset using the useful life that is used for each asset. For example, an asset with a 30 year useful life will be depreciated out over 30 years.

#### **Column E**

*Size:* Enter the size of the asset from the drop down list.

#### **Column F**

*Length:* Enter the feet of the asset. Example: Enter 600 (do not enter 600')

#### **Column G**

*Material:* Enter the material of the asset from the drop down list.

#### **Column H**

*Location:* Enter the address where the asset is located.

#### **Column J**

*Year Installed:* Enter the year the asset was installed.

#### **Column M**

*Original Cost:* Enter the original cost (material and installation costs) of the asset. Historical cost estimates for distribution items can be found on the Historical Costs Tab.

#### **Column P**

*Criticality Analysis:* Enter the criticality for each asset. The Asset Rating Tab provides information about how to determine the criticality for assets.

#### **Column Q**

*Comments:* Enter any specific comments related to the asset.

## Service Line Tab

This tab contains information about the Lead and Copper Rule Revisions and where to find more information about the Service Line Inventory requirement for public water systems.

## System Info & Inventory Data Tabs

These two tabs are linked together and are from the Minnesota Department of Health. These two tabs are to be used for completing your Service Line Inventory. The “Split Ownership Detailed Version” is currently in this asset management template. If your public water system has single ownership for your service lines, please visit the Minnesota Department of Health Lead and Copper Rule Revisions webpage and download the template for single ownership. Instructions for completing these two tabs can be found at the web link below.

<https://www.health.state.mn.us/communities/environment/water/rules/lcrr.html>

## Comments Tab

This tab is for any additional comments that are important to note about the plan. Example: “No hydrant 11 on map.”

## Water System Inventory Tab

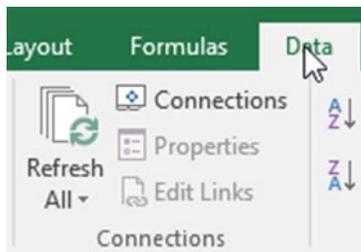
Update the “Current Year” cell for the current calendar year.

|               |      |
|---------------|------|
| Current Year: | 2023 |
|---------------|------|

## To Refresh Water System Inventory Tab

This worksheet tab will automatically update when the file is opened. When changes are made to the Water System Inventory Tab “Current Year” cell on the worksheet, you will need to Refresh the worksheet manually. There are two main ways to perform this task:

1. Save, close, and re-open the file; the worksheets will all be refreshed.
2. Select the Data Tab >> Connection Group >> Refresh All. This will refresh the data in each worksheet.



## Source Tab (Blue)

This tab provides a summary of all assets associated with “Source” from the data tab.

## Treatment Tab (Grey)

This tab provides a summary of all assets associated with “Treatment” from the data tab.

## Storage Tab (Yellow)

This tab provides a summary of all assets associated with “Storage” from the data tab.

## Distribution Tab (Green)

This tab provides a summary of all assets associated with “Distribution” from the data tab.

## Meters, Hydrants, Valves, Watermain/Distribution Lines Tabs (Purple)

The pivot tables on the purple tabs (Meters, Hydrants, Valves, and Dist Line Watermain) will provide the Distribution Inventory information that the Minnesota Department of Health requests from all public water systems.

## Overall Condition Tab

This tab provides a pie chart of all assets entered into the template based on the condition of the assets.

## Asset Graphs

This tab provides a bar graph of the assets entered into the template. The pivot tables located in the upper right have filters that the user can utilize to change the bar graph. The box in the upper left corner provides a breakdown of the number of assets in each category based on the condition.

## Hydrant Maintenance Tab

This tab is **not** tied to the data tab. This tab is meant to be an additional resource for keeping track of hydrant maintenance items. Information from this tab must be entered manually or copy/paste the hydrant information from the data tab. **Note:** This must be done by copying one column at a time.

## Historical Costs Tab

This tab provides an estimate of historical costs for distribution assets. These values may be used if the water system does not have actual pricing information for their distribution assets.

## Asset Rating Tab

This tab is a tool to help water systems determine the criticality of each asset. The scale runs from 1-25 with “25” being extremely critical to the system while “1” indicates an asset that is not critical to the system. Consider the probability of failure and the consequence of the failure along with the age and the level of routine maintenance performed on the assets when determining criticality.

## Asset Condition Tab

This tab provides the definitions for the condition of each asset. This is based on the useful life and age of each asset.

## Useful Life Tab

This tab provides useful life ranges for typical water system assets. If the water system decides to use a different useful life than what is provided, the “My Schedule” column is available to make any notes. This tab is **not** tied to the data tab.

## Key Financial Indicators

This tab a resource for the water system to use to determine the financial stability of the system. Enter your information into the green cells at the top of the page. Towards the bottom of the page is a link to a webinar titled “Financial Management for Water and Wastewater Funding Program Applicants in Minnesota.” This webinar is a good resource for water and wastewater systems to learn about and improve their financial position.

## Rate Sheet

This is a copy of the MRWA Annual Rate Sheet that water and wastewater systems can use to do a rate study.

## Source Water Protection Questions

This tab has a series of questions for the system to answer regarding source water protection. The column on the right side titled “Answer” has a drop down box with the answer choices. If there are any notes that are helpful, please enter them on the line with the question or at the bottom of the page.

| ire. 11 | Answer   |
|---------|----------|
|         | Yes      |
|         | No       |
|         | Not Sure |

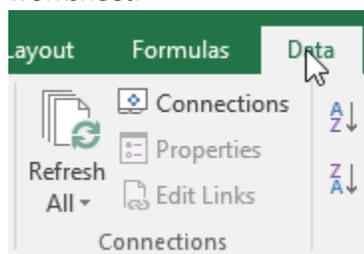
# Additional Instructions for Data Analysis

## Data Tab

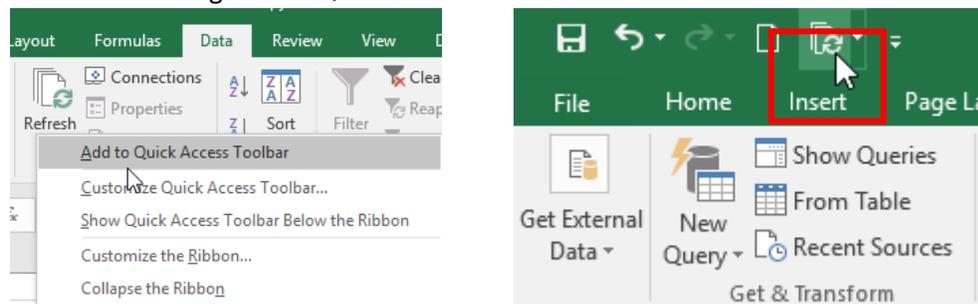
### Refresh

These worksheet tabs will automatically update when you open the file. When you make changes to the Data worksheet tab you will need to Refresh the worksheets manually. There are two main ways to perform this task:

1. Save, close, and re-open the file; the worksheets will all be refreshed.
2. Select the Data Tab >> Connection Group >> Refresh All. This will refresh the data in each worksheet.



Note: if you want, you can add that function to your Quick Access Toolbar by Right-mouse clicking the icon and selecting Add to Quick Access Toolbar.

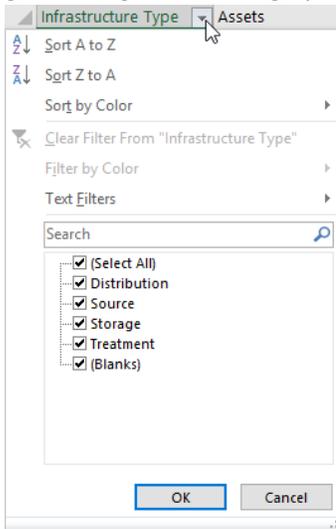


## Filter within the Data Worksheet

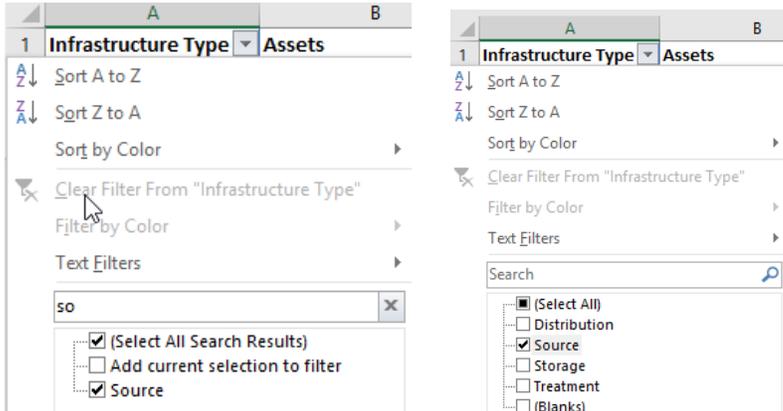
Filters are used to narrow down the data in your worksheet, allowing you to view only the information that you need. You can filter more than one column. Filters are cumulative, which means you can apply multiple filters. Each additional filter is based on the current filter and further reduces the records being shown.

1. Click the dropdown arrow in the column header you wish to filter your information. Excel provides you with Sort options, filters and check boxes of each unique instance found in that column. When you select a column that is a number, you will get sorting and filtering options for numbers (i.e. greater than, less than, etc.). When you select a column that is a date, you will

get sorting and filtering options for dates (i.e. Between two dates, last month, etc.)



- If you only want to see records for Source in the Infrastructure Type column, you can either start typing the word “source” in the Search text box, OR, only select the checkmark to the left of “source.” Click the OK Button.

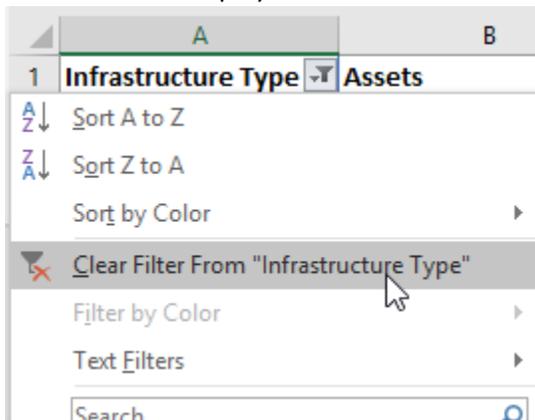


- Your records are displayed.

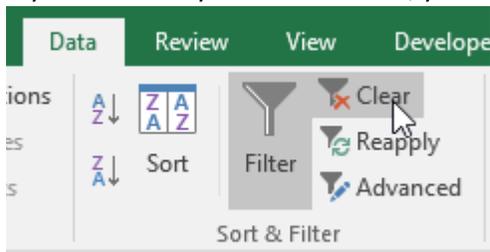
|    | A                   | B                  | C           | D                                  | E             | F         |
|----|---------------------|--------------------|-------------|------------------------------------|---------------|-----------|
| 1  | Infrastructure Type | Assets             | Useful Life | Item                               | Location      | Condition |
| 2  | Source              | Wells+K31139B2:J32 | 50          | Well #2                            | 221 2nd St NW | Replace   |
| 3  | Source              | Wells              | 50          | Well #4                            | 317 1st St NE | Good      |
| 5  | Source              | Pumps              | 30          | Well #2 Submersible Pump           | 221 2nd St NW | NA        |
| 6  | Source              | Pumps              | 30          | Well #4 Submersible Pump (150 GPM) | 317 1st St NE | Excellent |
| 19 | Source              | Meters             | 40          | 3" McCrometer Meter Well #2        | 221 2nd St NW | NA        |
| 20 | Source              | Meters             | 40          | 6" Water Specialties Corp Meter    | 317 1st St NE | Good      |

## Clear a Filter

To clear a filter off of one column, click the drop down for that column. Select Clear Filter From... Your records will be displayed.

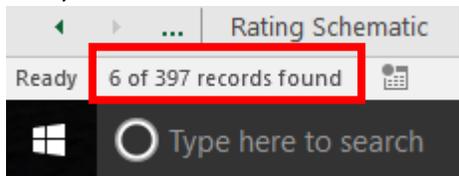


If you have many columns filtered, you can use the Data Tab >> Sort & Filter group >> Clear.



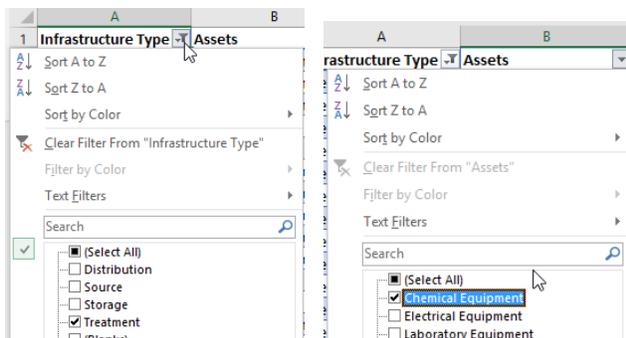
## Records Found

If you have your data filtered, the area just above your start button (lower left corner) will display how many records are found.



## Multiple Filters

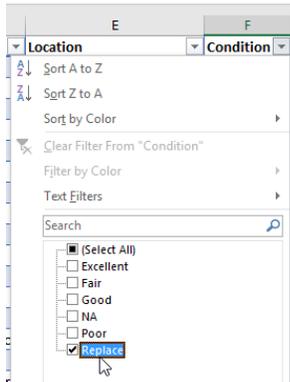
This example first filters Infrastructure Type for Treatment records. Then, for Chemical Equipment in the Asset Column.



Results:

|    | A                   | B                  | C           | D  | E             | F         |    |
|----|---------------------|--------------------|-------------|--|---------------|-----------|----|
| 1  | Infrastructure Type | Assets             | Useful Life | Item                                       | Location      | Condition | Ye |
| 7  | Treatment           | Chemical Equipment | 20          | Fluoride Pump 1 (6 GPD)                    | 221 2nd St NW | NA        |    |
| 8  | Treatment           | Chemical Equipment | 20          | Fluoride Pump 2 (6 GPD)                    | 221 2nd St NW | NA        |    |
| 9  | Treatment           | Chemical Equipment | 20          | Phosphate Pump (12 GPD)                    | 221 2nd St NW | Excellent |    |
| 21 | Treatment           | Chemical Equipment | 20          | Fluoride Pump 1                            | 317 1st St NE | Fair      |    |
| 22 | Treatment           | Chemical Equipment | 20          | Fluoride Pump 2                            | 317 1st St NE | Fair      |    |
| 23 | Treatment           | Chemical Equipment | 20          | Phosphate Pump                             | 317 1st St NE | Fair      |    |
| 32 | Treatment           | Chemical Equipment | 20          | Hydro Instruments Series 300 Chlorine Head | 317 1st St NE | NA        |    |
| 33 | Treatment           | Chemical Equipment | 20          | Chlorine Scale                             | 317 1st St NE | NA        |    |

This example filters data for all records in the Condition column that display "Replace"



|     | A                   | B                    | C           | D                    | E                        | F         | G              |      |
|-----|---------------------|----------------------|-------------|----------------------|--------------------------|-----------|----------------|------|
| 1   | Infrastructure Type | Assets               | Useful Life | Item                 | Location                 | Condition | Year Installed | Repl |
| 2   | Source              | Wells+K31139B2:J32   | 50          | Well #2              | 221 2nd St NW            | Replace   | 1949           |      |
| 12  | Treatment           | Electrical Equipment | 50          | Main Power           | 221 2nd St NW            | Replace   | 1949           |      |
| 89  | Distribution        | Valves               | 40          | 12 - Gate Valve      | NW 5th St & Atlantic Ave | Replace   | 1976           |      |
| 90  | Distribution        | Valves               | 40          | 13 - Gate Valve      | 329 NW 5th St            | Replace   | 1976           |      |
| 91  | Distribution        | Valves               | 40          | 14 - Gate Valve      | NW 4th St & Dakota Ave   | Replace   | 1972           |      |
| 94  | Distribution        | Valves               | 40          | 17 - Gate Valve      | 234 NW 3rd St            | Replace   | 1972           |      |
| 101 | Distribution        | Valves               | 40          | 24 - Gate Valve      | 334 1st St N             | Replace   | 1974           |      |
| 102 | Distribution        | Valves               | 40          | 25 - Isolation Valve | 334 1st St N             | Replace   | 1974           |      |

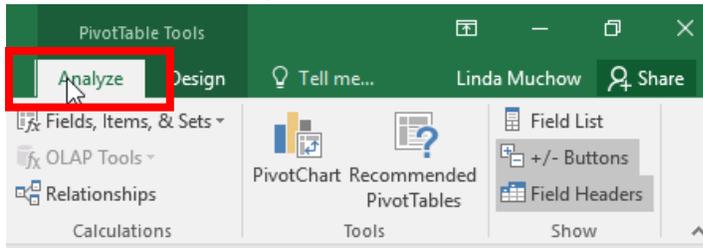
## PivotTables

The following sheet tabs are setup as PivotTables:

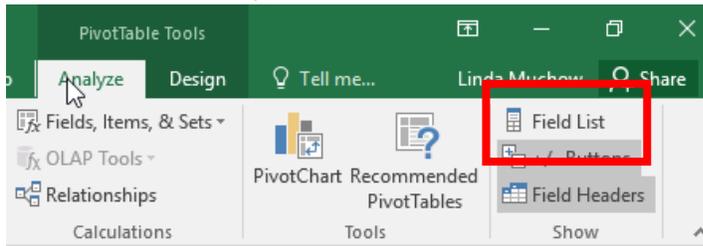
- Water System Inventory
- Source
- Treatment
- Storage
- Distribution
- Meters
- Hydrants
- Valves
- Dist Line Watermain
- Service Line
- Asset Graphs
- Overall Condition

## PivotTable Field List

The PivotTable Field list is turned off. To edit and make changes, click anywhere in the information. A new tab section will open on the ribbon named PivotTable Tools. Select the Analyze Tab.



From the Show Group, Select Field List.



This turns on the Field list panel on the right hand side of the screen.

The screenshot shows an Excel spreadsheet with a PivotTable and the PivotTable Fields task pane on the right. The PivotTable is structured as follows:

| Infrastructure Type                     | Assets               | Original Cost         | Current Value       | Annual Depreciation |
|---|----------------------|-----------------------|---------------------|---------------------|
| Distribution                            | Curb Stops           | \$56,015.00           | \$29,914.46         | \$1,120.30          |
|   | Distribution Lines   | \$279,004.00          | \$215,987.38        | \$3,487.55          |
|   | Hydrants             | \$91,358.00           | \$57,388.62         | \$1,522.63          |
|   | Valves               | \$58,039.00           | \$32,796.10         | \$1,385.88          |
| <b>Distribution Total</b>               |                      | <b>\$484,416.00</b>   | <b>\$336,086.55</b> | <b>\$7,516.36</b>   |
| Source                                  | Meters               | \$0.00                | \$0.00              | \$0.00              |
|   | Pumps                | \$6,745.03            | \$6,520.20          | \$224.83            |
|   | Wells                | \$25,300.00           | \$17,204.00         | \$506.00            |
|   | Wells+K3113982:J32   | \$0.00                | \$0.00              | \$0.00              |
| <b>Source Total</b>                     |                      | <b>\$32,045.03</b>    | <b>\$23,724.20</b>  | <b>\$730.83</b>     |
| Storage                                 | Water Tower          | \$573,690.00          | \$565,494.43        | \$8,195.57          |
| <b>Storage Total</b>                    |                      | <b>\$573,690.00</b>   | <b>\$565,494.43</b> | <b>\$8,195.57</b>   |
| Treatment                               | Electrical Equipment | \$36,000.00           | \$24,480.00         | \$720.00            |
|   | Laboratory Equipment | \$1,392.18            | \$1,392.18          | \$69.61             |
|   | Mechanical Equipment | \$0.00                | \$0.00              | \$0.00              |
|   | Pumps                | \$0.00                | \$0.00              | \$0.00              |
|   | Structure            | \$46,883.00           | \$744.17            | \$372.09            |
|   | Chemical Equipment   | \$0.00                | \$0.00              | \$0.00              |
| <b>Treatment Total</b>                  |                      | <b>\$84,275.18</b>    | <b>\$26,616.35</b>  | <b>\$1,161.69</b>   |
| (blank)                                 | (blank)              | \$0.00                | \$0.00              | \$0.00              |
| <b>(blank) Total</b>                    |                      | <b>\$0.00</b>         | <b>\$0.00</b>       | <b>\$0.00</b>       |
| <b>Total Assets/Annual Depreciation</b> |                      | <b>\$1,174,426.21</b> | <b>\$951,921.53</b> | <b>\$17,604.46</b>  |

The PivotTable Fields task pane on the right shows the following configuration:

- Filters:** None
- Columns:** Values
- Rows:** Infrastructure Type, Assets
- Values:** Original Cost, Current Value, Annual Depreciation

Fields you put in the different layout section are as follows:

1. **Report Filters:** filters are shown at the top-level report above the PivotTable and will filter the entire table at once.
2. **Column Labels:** are shown in column layout (horizontal) at the top of the PivotTable.
3. **Row Labels:** are shown in Row layout (vertical) on the left side of the PivotTable.

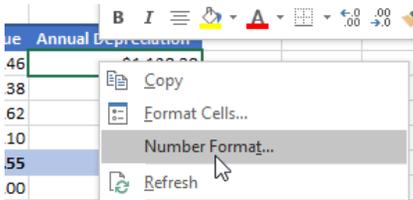
4. **Values:** are shown as summarized numeric values.

| Infrastructure Type                     | Assets               | Original Cost         | Current Value       | Annual Depreciation |
|---|----------------------|-----------------------|---------------------|---------------------|
| Distribution                            | Curb Stops           | \$56,015.00           | \$29,914.46         | \$1,120.30          |
|   | Distribution Lines   | \$279,004.00          | \$215,987.38        | \$3,487.55          |
|   | Hydrants             | \$91,358.00           | \$57,388.62         | \$1,522.63          |
|   | Valves               | \$58,039.00           | \$32,796.10         | \$1,385.88          |
| <b>Distribution Total</b>               |                      | <b>\$484,416.00</b>   | <b>\$336,086.55</b> | <b>\$7,516.36</b>   |
| Source                                  | Meters               |                       | \$0.00              | \$0.00              |
|   | Pumps                | \$6,745.03            | \$6,520.20          | \$224.83            |
|   | Wells                | \$25,300.00           | \$17,204.00         | \$506.00            |
|   | Wells+K31139B2-J32   | \$0.00                | \$0.00              | \$0.00              |
| <b>Source Total</b>                     |                      | <b>\$32,045.03</b>    | <b>\$23,724.20</b>  | <b>\$730.83</b>     |
| Storage                                 | Water Tower          | \$573,690.00          | \$565,494.43        | \$8,195.57          |
| <b>Storage Total</b>                    |                      | <b>\$573,690.00</b>   | <b>\$565,494.43</b> | <b>\$8,195.57</b>   |
| Treatment                               | Electrical Equipment | \$36,000.00           | \$24,480.00         | \$720.00            |
|   | Laboratory Equipment | \$1,392.18            | \$1,392.18          | \$69.61             |
|   | Mechanical Equipment |                       | \$0.00              | \$0.00              |
|   | Pumps                |                       | \$0.00              | \$0.00              |
|   | Structure            | \$46,883.00           | \$744.17            | \$372.09            |
| Chemical Equipment                      |                      | \$0.00                | \$0.00              |                     |
| <b>Treatment Total</b>                  |                      | <b>\$84,275.18</b>    | <b>\$26,616.35</b>  | <b>\$1,161.69</b>   |
| (blank)                                 | (blank)              |                       | \$0.00              | \$0.00              |
| <b>(blank) Total</b>                    |                      |                       | <b>\$0.00</b>       | <b>\$0.00</b>       |
| <b>Total Assets/Annual Depreciation</b> |                      | <b>\$1,174,426.21</b> | <b>\$951,921.53</b> | <b>\$17,604.46</b>  |

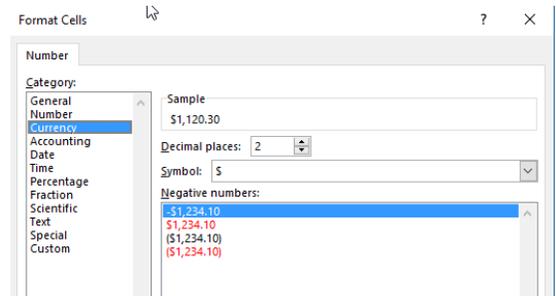
### Update Value Field Settings

You may need to update the format of your values, i.e. currency. To do this:

1. Right mouse click the value you would like to change. Select Number Format...



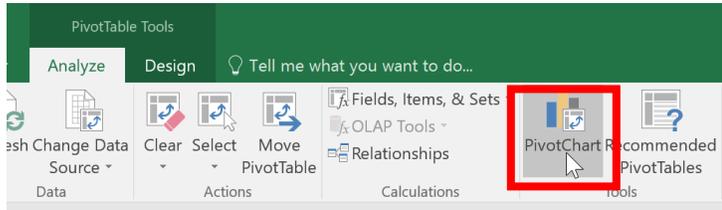
2. Update to the desired format. Click OK. This updates how your numbers are formatted in your PivotTable and will carry over into your charting.



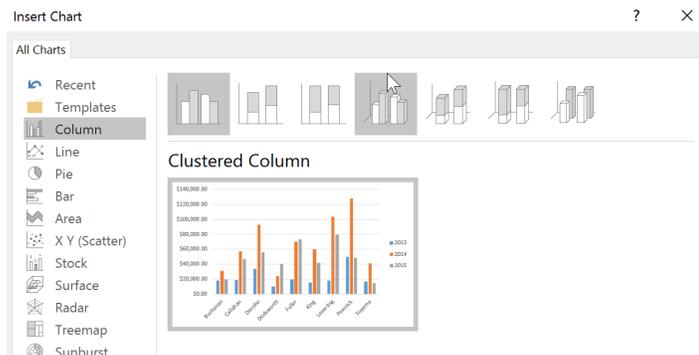
| Original Cost       | Current Value       | Annual Depreciation |
|---------------------|---------------------|---------------------|
| \$56,015.00         | \$29,914.46         | \$1,120.30          |
| \$279,004.00        | \$215,987.38        | \$3,487.55          |
| \$91,358.00         | \$57,388.62         | \$1,522.63          |
| \$58,039.00         | \$32,796.10         | \$1,385.88          |
| <b>\$484,416.00</b> | <b>\$336,086.55</b> | <b>\$7,516.36</b>   |

## PivotChart

1. Click within the PivotTable information.
2. From the PivotTable Tools>>Analyze tab click PivotChart from within the Tools Group.

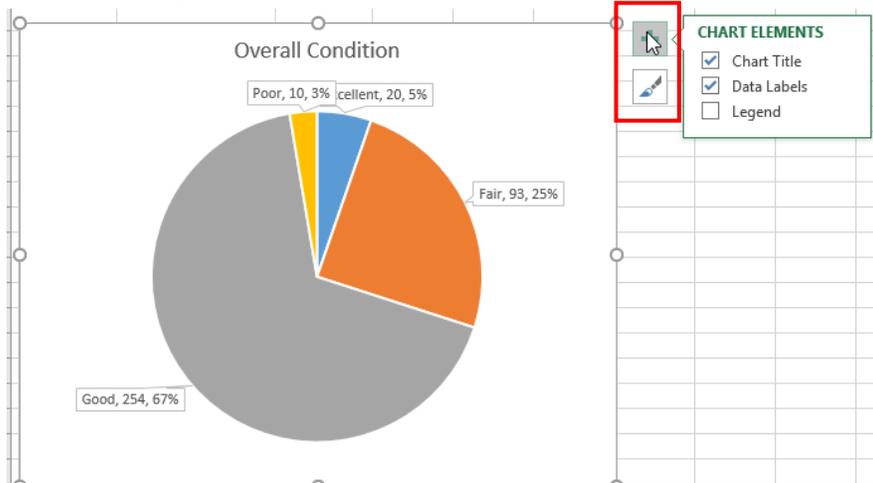


3. Select the type of chart you would like from the Insert Chart window. Click OK.

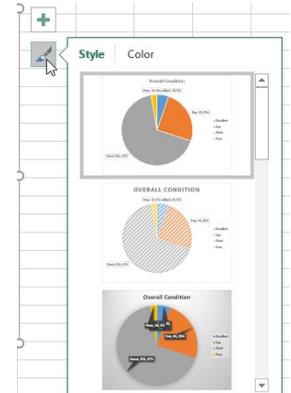


4. Next, we will turn the elements of the chart we want off / on using the Chart Element button

to the right of the selected chart. Select or deselect the elements for your chart.



5. Use the Paint brush to change the style and colors of the chart.

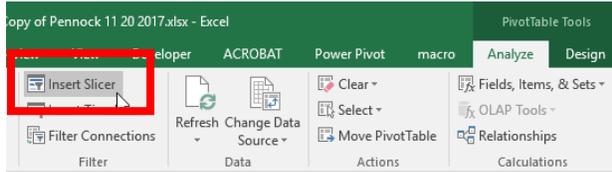


## Slicers

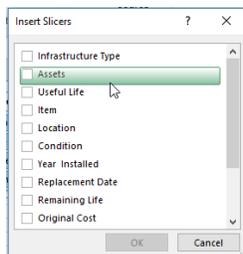
Slicers allow you to filter your data in a visual way that is clear to understand. You can use slicers to quickly look at segments of your data, such as a fiscal year of information. Unlike a PivotTable filter, you can see how one filter has affected the selections left available for other filters.

|    | A                          | B                    | C                | D                | E                 | F | G | H |
|----|----------------------------|----------------------|------------------|------------------|-------------------|---|---|---|
| 1  |                            |                      |                  |                  |                   |   |   |   |
| 2  |                            |                      |                  |                  |                   |   |   |   |
| 3  | <b>Infrastructure Type</b> | <b>Assets</b>        | <b>Condition</b> | <b>Condition</b> | <b>% of Total</b> |   |   |   |
| 4  | ▾ Distribution             | ▾ Curb Stops         | Fair             | 63               | 15.87%            |   |   |   |
| 5  |                            |                      | Good             | 160              | 40.30%            |   |   |   |
| 6  |                            |                      | Poor             | 8                | 2.02%             |   |   |   |
| 7  |                            |                      | NA               | 1                | 0.25%             |   |   |   |
| 8  |                            | ▾ Distribution Lines | Excellent        | 5                | 1.26%             |   |   |   |
| 9  |                            |                      | Good             | 36               | 9.07%             |   |   |   |
| 10 |                            | ▾ Hydrants           | Excellent        | 6                | 1.51%             |   |   |   |

Turn slicers on by using the Analyze tab (Filter group) within the PivotTable Tools Ribbon Section.



All of the field headings to the data will be displayed. Select the fields you wish to have slicers available in the worksheet.

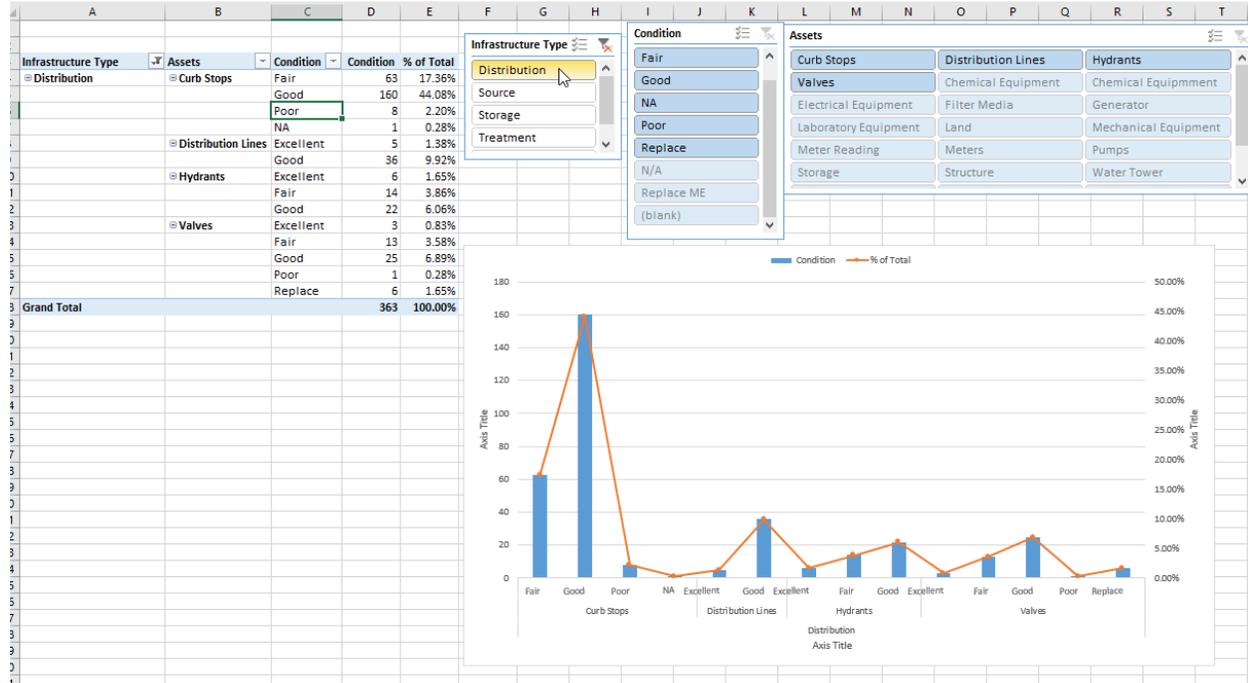


In the Asset Graphs worksheet tab the following slicers are turned on:

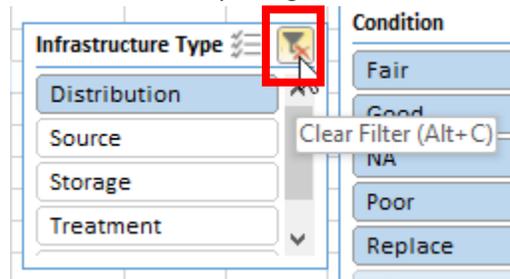
- Infrastructure Type
- Condition
- Assets

|  |   |   |
|--|---|---|
| <b>Infrastructure Type</b><br>Distribution<br>Source<br>Storage<br>Treatment | <b>Condition</b><br>Fair<br>Good<br>NA<br>Poor<br>Replace<br>N/A<br>Replace ME<br>(blank) | <b>Assets</b><br>Chemical Equipment   Curb Stops   Distribution Lines<br>Electrical Equipment   Hydrants   Laboratory Equipment<br>Mechanical Equipment   Meters   Pumps<br>Structure   Valves   Water Tower<br>Wells   Wells+K31I39B2:J32   (blank)<br>Chemical Equipment   Filter Media   Generator |
|--|---|---|

Select the data from the slicer you wish to show. I.e. Distribution from the Infrastructure slicer will only display that type in the Pivot Table and Chart.

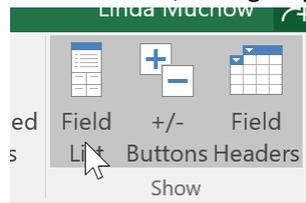


Clear a filter off by using the clear filter button in the upper right hand corner of the Slicer.



## PivotTable Tips & Tricks

As soon as you create a new pivot table (or select the cell of an existing table in a worksheet), Excel displays the Options tab of the PivotTable Tools contextual tab. Among the many groups on this tab, you find the Show/Hide group that contains the following useful command buttons:



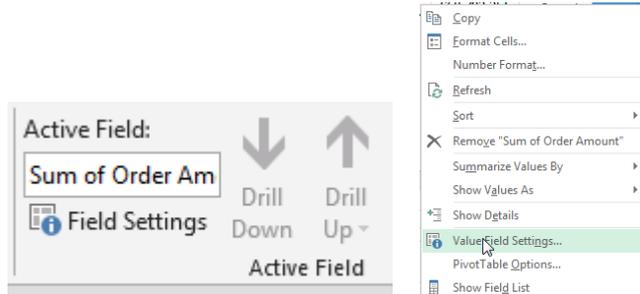
- **Field List** to hide and redisplay the PivotTable Field List task pane on the right side of the Worksheet area.
- **+/- Buttons** to hide and redisplay the expand (+) and collapse (-) buttons in front of particular Column Fields or Row Fields that enable you to temporarily remove and then redisplay their particular summarized values in the pivot table.

- **Field Headers** to hide and redisplay the fields assigned to the Column Labels and Row Labels in the pivot table.

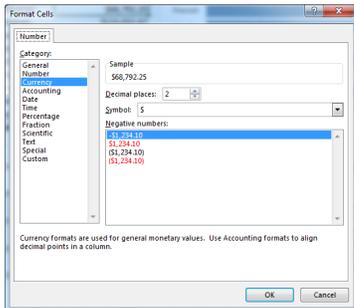
### Format the Values in the PivotTable

To format the summed values entered as the data items of the pivot table with an Excel number format, follow these steps:

1. Right Mouse click the cell in the pivot table. Select Number Format.



2. In the Category list, select the number format you want to assign.

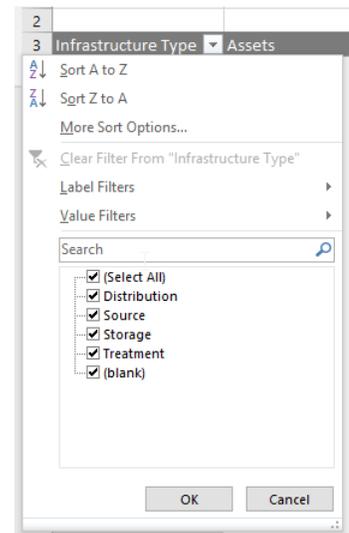


3. (Optional) Modify any other options for the selected number format, such as Decimal Places, Symbol, and Negative Numbers.

### Filtering individual Column and Row fields

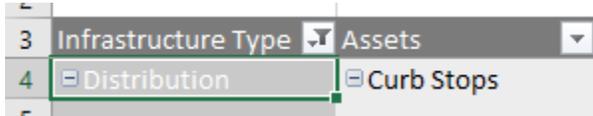
The filter buttons attached to the Column and Row field labels let you filter out entries for particular groups and, in some cases, individual entries in the data source. To filter the summary data in the columns or rows of a pivot table, follow these steps:

1. Click the Column or Row field's filter button.
2. Deselect the check box for the (Select All) option at the top of the list box in the drop-down list.
3. Click the check boxes for all the groups or individual entries whose summed values you still want displayed in the pivot table.
4. Click OK.

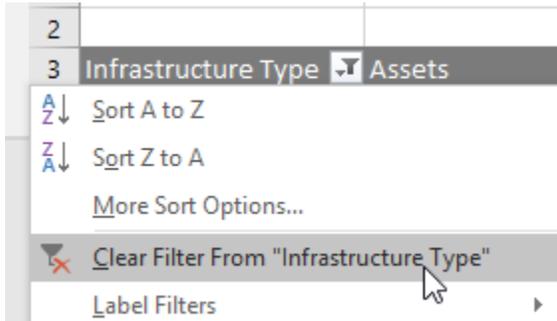


As with filtering a Report Filter field, Excel replaces the standard drop-down button icon for that Column or Report field with a cone-shaped filter icon, indicating that the field is currently being filtered and only

some of its summary values are now displayed in the pivot table.



To redisplay all the values for a filtered Column or Report field, you need to click its filter button and then click Clear Filter From ...

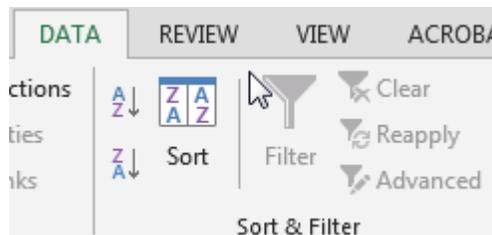
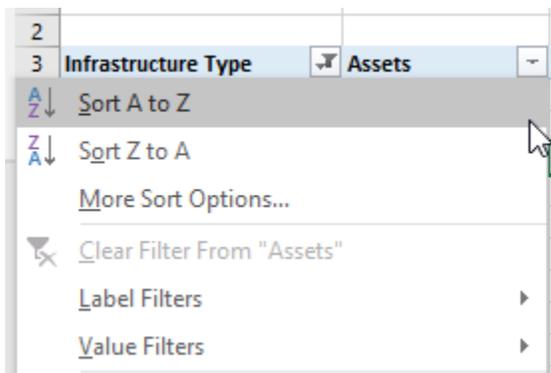


### Sort a PivotTable

You can instantly reorder the summary values in a pivot table by sorting the table on one or more of its Column or Row fields. To sort a pivot table, follow these steps:

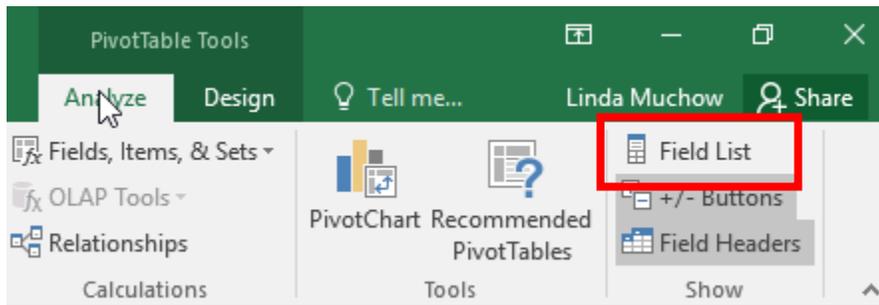
1. Click the filter button for the Column or Row field you want to sort.
2. Click either Sort A to Z or Sort Z to A at the top of the field's drop-down list.

Click the Sort A to Z option when you want the table reordered by sorting the labels in the selected field alphabetically, from the smallest to largest numeric value, or from the oldest to newest date. Click the Sort Z to A option when you want the table reordered by sorting the labels in reverse alphabetical order (Z to A), values from the highest to smallest, and dates from the newest to oldest. You can also click in any data in the PivotTable and use the Sort and Filter options on the Data Tab within the Ribbon.

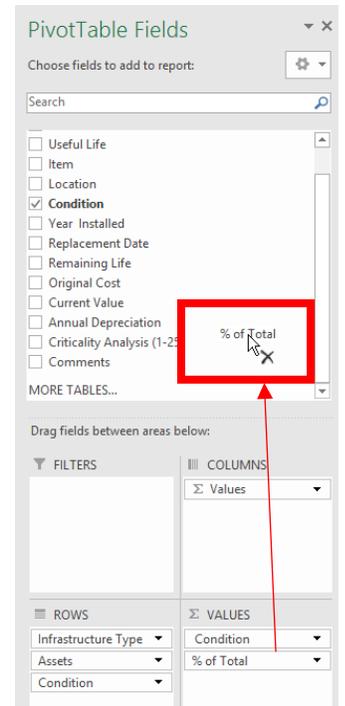


## Modify the PivotTable Fields

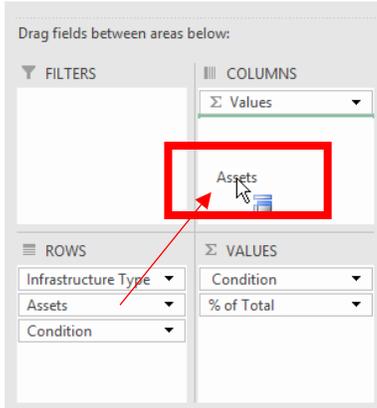
1. From the Field List: (if this is not displayed, click in the PivotTable, Analyze Tab >> Show Group >> Field List.



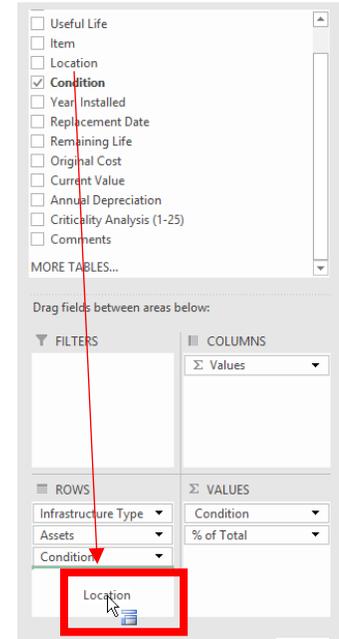
- a) To remove a field from the table, drag its field name out of any of the drop zones and, when the mouse pointer changes to an x, release the mouse button; or click its check box in the Choose Fields to Add to Report list to remove its check mark.



- b) To move an existing field to a new place in the table, drag its field name from its current drop zone to a new zone at the bottom of the task pane.



- c) To add a field to the table, drag its field name from the Choose Fields to Add to Report list and drop the field in the desired drop zone.

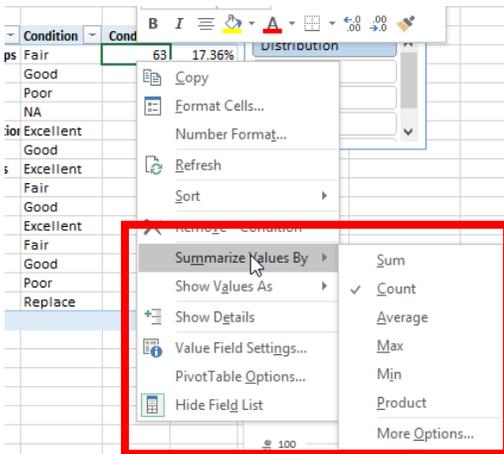


### Modify the Summary Function

By default, Excel uses the SUM function to create subtotals and grand totals for the numeric field(s) that you include in a pivot table. Some pivot tables, however, require the use of another summary function, such as AVERAGE or COUNT.

To change the summary function that Excel uses in a pivot table, follow these steps:

1. Right-mouse click the field. Select a new summary function in the Value Field Settings dialog box.



2. Change the field's summary function to any of the following functions by selecting it in the Summarize Value Field By list box:
  - **Count** to show the number of records for a particular category (note that Count is the default setting for any text fields that you use in a pivot table).
  - **Average** to calculate the average (that is, the arithmetic mean) for the values in the field for the current category and page filter.
  - **Max** to display the highest numeric value in that field for the current category and page filter.
  - **Min** to display the lowest numeric value in that field for the current category and page filter.
  - **Product** to multiply all the numeric values in that field for the current category and page filter (all non-numeric entries are ignored).

Excel applies the new function to the data present in the body of the pivot table.