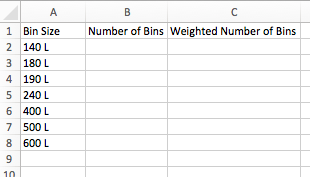
**Getting The Data**

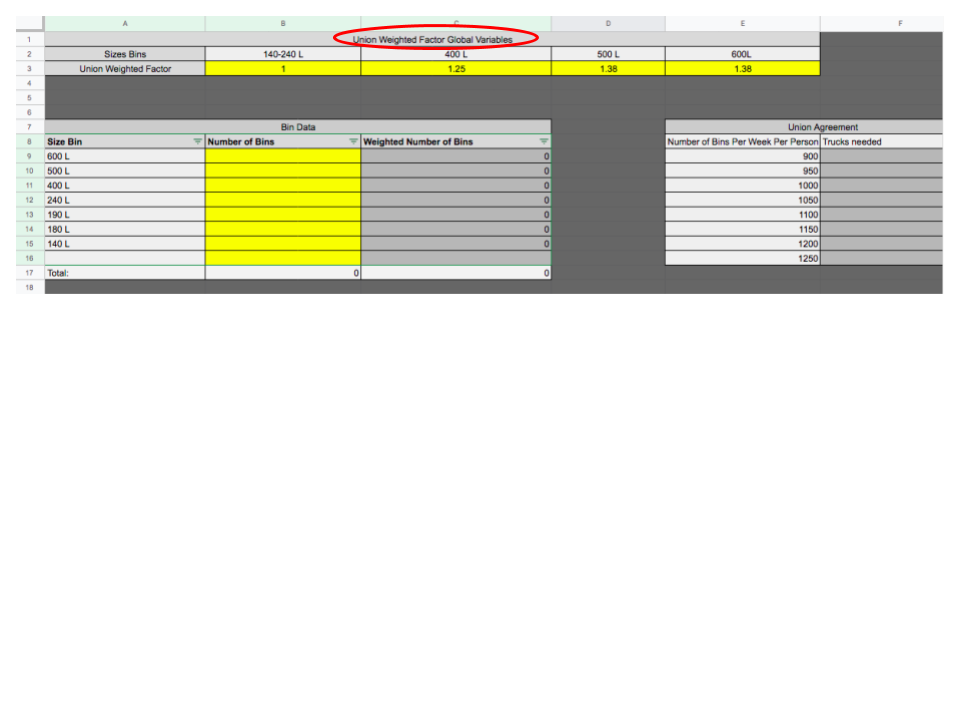
1. Download the waste data issued from the Municipality waste system (ASK) for the region you are trying to analyze.
2. Open the data in Excel.
3. Sort the specific fraction of waste that you would like from the data (residual, paper, etc.).
4. Once sorted, copy and paste the sorted fraction’s address, collection days, and size of bin into another spreadsheet named “ \*Fraction of Waste-Region”. Do this in the same excel book, just add another sheet to the document.
5. Now that all of the data is in one sheet, sort the collection days per day of the week (Monday, Tuesday, etc.).
   1. Note: The data from ASK includes multiple different collection days. One day of the week could be included into multiple different times of the week. For example, all of the days in Amager East
6. Create another sheet in the workbook. Label the new sheet “Bin Sizes”.
7. Create a table in the sheet with labels ‘Bin Sizes’, ‘Number of Bins’ and ‘Weighted Number of Bins’ written in three different cells across the same row and the varying size bins are listed vertically underneath the ‘Bin Sizes’ in separate cells to model a table seen below. See example below.



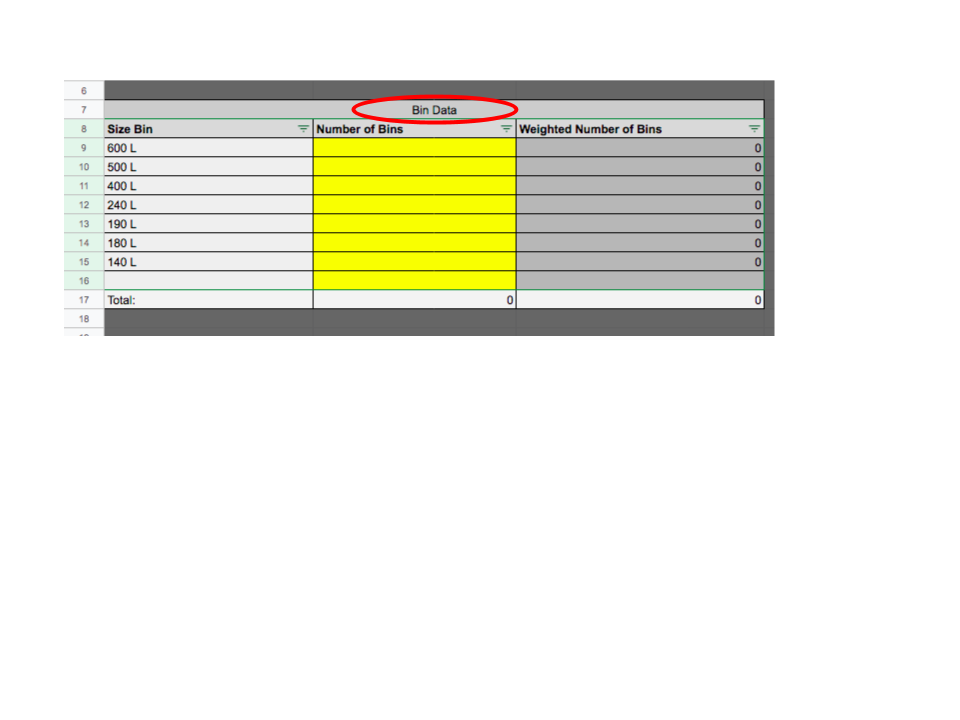
1. The number of bins for each size were recorded by separating each day (Monday-Friday) using the process above and hitting control+f to (on Mac it will be Command+f) under each full set of bins per day and recording the number for each bin size.
2. Once all of the days’ values are recorded, add all of these values together for each bin size and put the corresponding bin number and sizes to each in the capacity calculator under “Bin Data.”

**Capacity Calculator:**

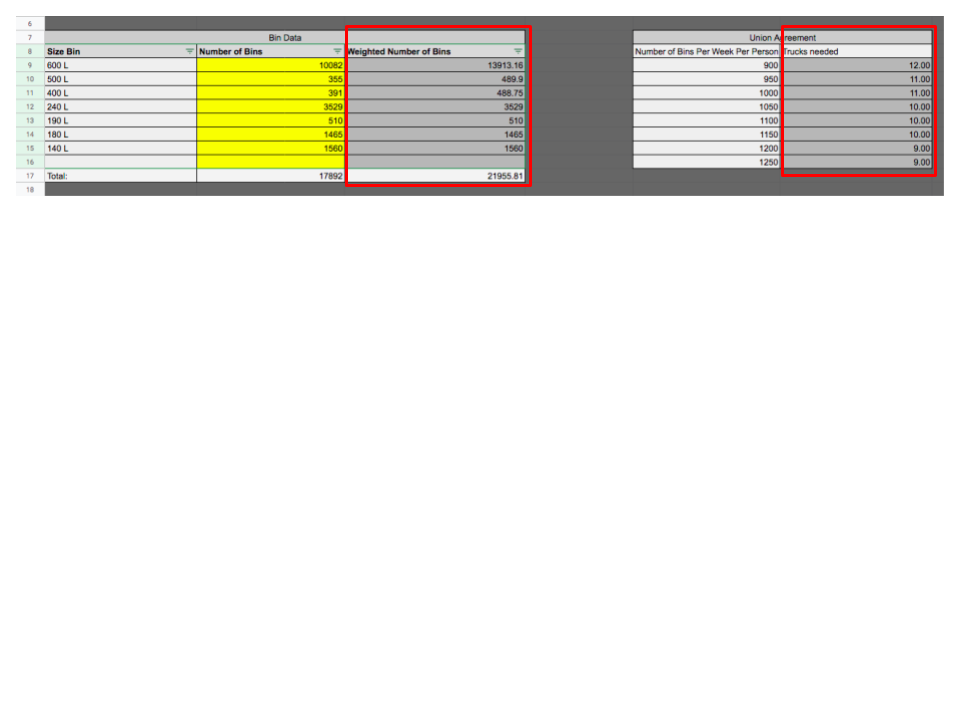
1. The first step when using the calculator is to assign the union weight for each size of bins. This can be done at the very top of the calculator.



1. After the weight has been assigned to each bin, input the number of bins for each size in the “Bin Data” section of the calculator. This is the total number of bins for the entire region taking into account frequency of each location as well (for example if the same location has a 240 L bin that has to be collected 3 times in a week, the total weekly weight would be 3 bins for the week for that location).



1. After the number of bins have been input into the calculator, you will get two outputs: the weighted number of bins conversion as well as the number of trucks needed to meet the given capacity

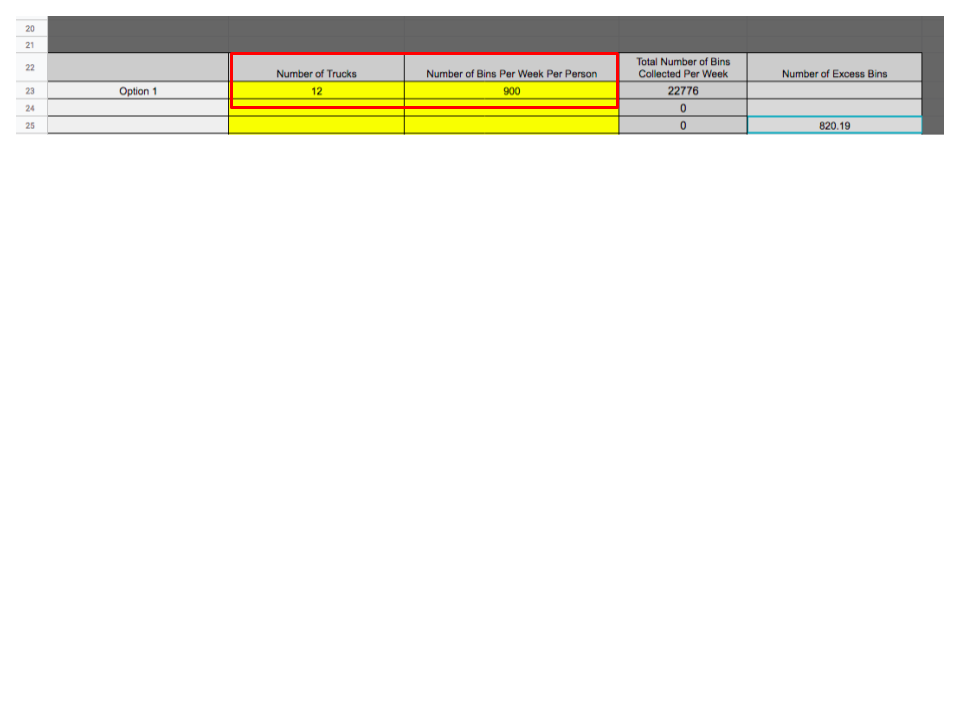


Note: The number of trucks needed calculates only if all of the trucks do the same number of bins. Additionally it is important to note that each bracket considers up to the maximum number in the union bracket. For example, union bracket 1100 can go up to 1149 and still be in the 1100 bracket. However, if the weight exceeds 1149, it will have to go to the next bracket, the 1150.

1. Under the “Trucks Needed” section, you can see based on a rough estimate, the amount of trucks you will need to collect waste given the weighted bin set. This only considers if all of the trucks collected the same amount of waste. However, in order to account for clusters in areas to collect. You should have multiple bracket options for collection (some trucks collect slightly more than others).

Assigning Collection Options

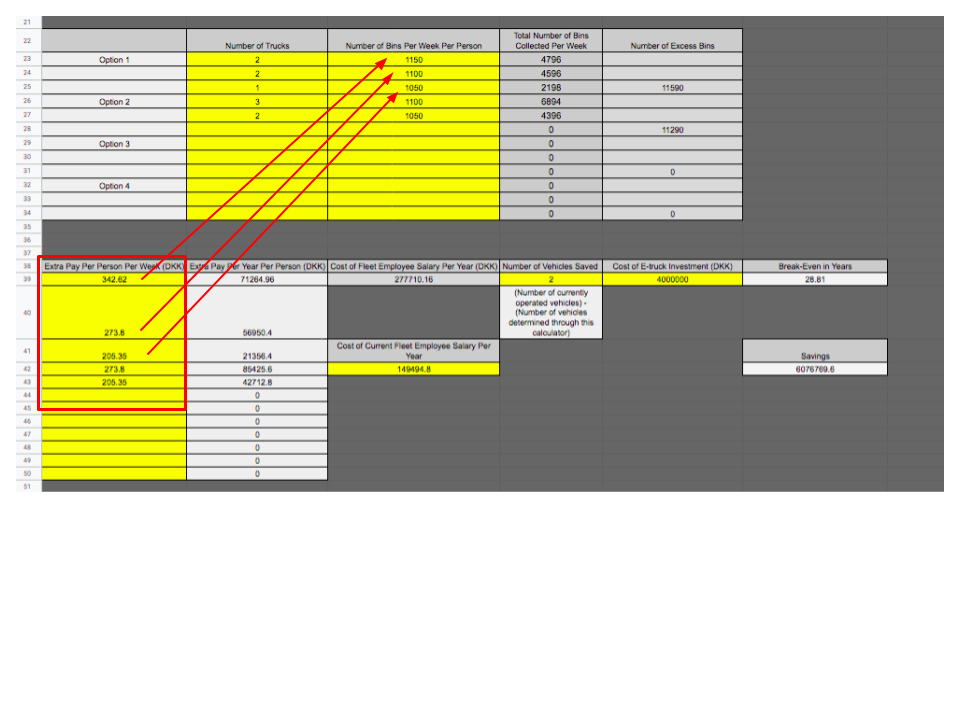
1. The ‘options’ section of the calculator is where the user will determine the best combination of shift premium pay and number of trucks based on their priorities.
2. Based on the number of trucks needed from the previous step, a baseline is first set to show lowest option of premium pay with the largest number of trucks (example contains numbers based on the previous section)



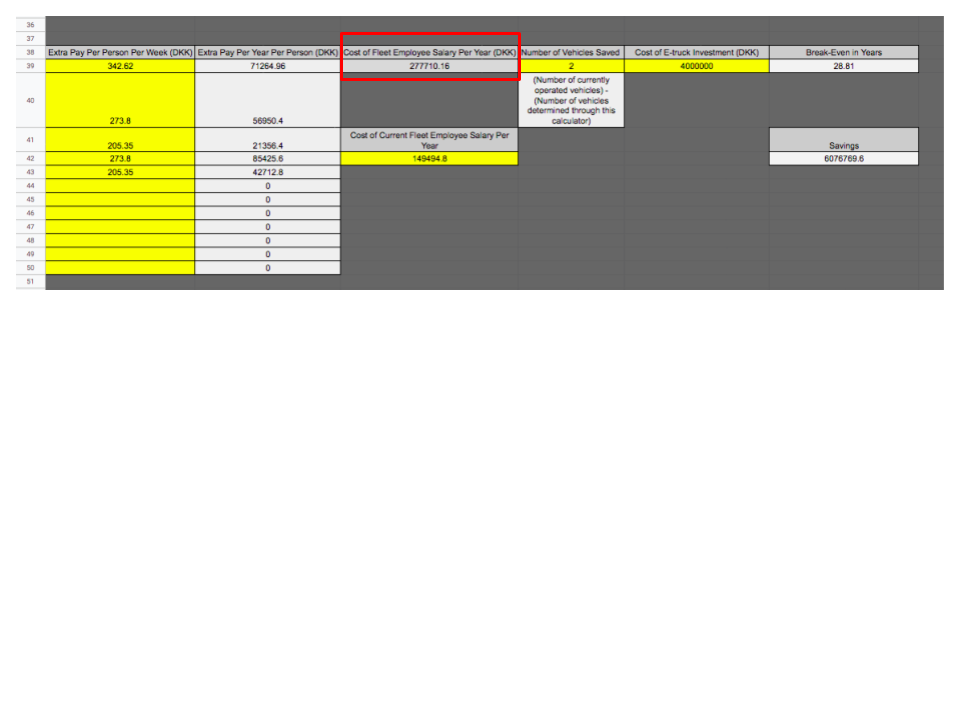
1. The number of excess bins serves to tell the user if there are not enough collection (with a negative number) or too many trucks/too high of premium pay (many thousand). Other than that, this number is relatively arbitrary.
2. From this, the different brackets of number of bins per week per person, as well as number of trucks, can be increased/decreased based on preferences.
3. This process is repeated until either the number of trucks is minimized to be as feasible as possible for the current route. It is important to note that the considerations are based on the maximum allowed values of collection within each bracket. These decisions then must keep in mind a given quota of excess bins to allocate for this.
   1. This process/results will tend to differ depending on what bracket of shift premium the user is comfortable with using, how many trucks they are comfortable minimizing by etc. An example of a fleet combinations is shown below using numbers from the previous section(s)

Financial Analysis

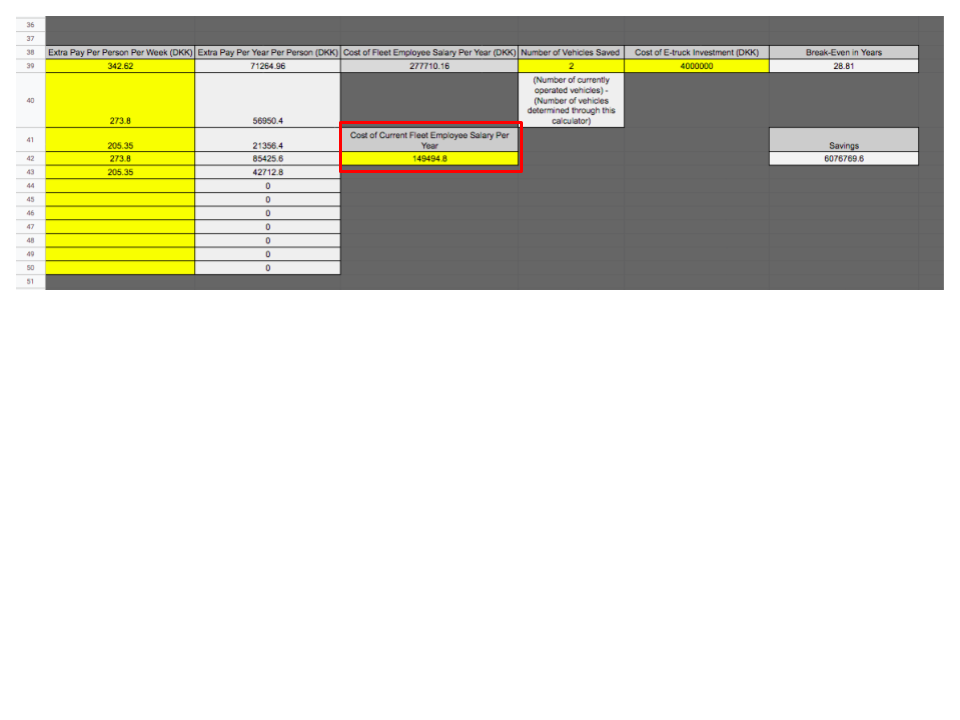
1. To get a brief understanding of the cost of offering shift premium pay and return on capital investment, the bottom column group of the capacity calculator will calculate the total shift premium pay as well as any savings
2. Start by inputting in the “Extra Pay Per Person Per Week” for each coinciding bracket above (For example, the first column of the option amount would be the first column of the financial analysis).



1. Once all of the shift premium per week per worker data is in. The calculator will display the cost of fleet employee salary per year in DDK. This number tells you have much in shift premium you will have to pay all collectors if you would like to collect at that current option.



1. Another option of the calculator is to show demonstrated savings and calculate a break even amount in years. If any trucks were able to be saved compared to current practices, put the number of trucks saved in the “Number of Vehicles Saved” section.
2. Next, include the current price of the E-truck (chassis only) per truck in the “Cost of E-truck Investment” section.
3. Lastly, input the cost of the current shift premium added to employee’s salaries (only the shift premium) from the current routes and put the summation of all of these values in the “Cost of Current Fleet Employee Salary Per Year” section.



1. The overall savings (E-truck capital investment savings-(new added shift premium amount per year over the course of 15 years-current added shift premium amount per year over the course of 15 years)).

